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Collected here are ten unpublished work papers from a 1962 Seminar in Seattle, held for the purpose of evaluating the interdisciplinary needs of the doctoral candidate who is receiving special training to organize the teaching of foreign languages in schools and universities. Authors are Dwight L. Bolinger (linguistics), John B. Carroll (programed instruction), Jacqueline E. de La Harpe (teaching literature), Charles A. Ferguson (linguistics), Ronald Hilton (culture), Wallace E. Lambert (psychology), Morris E. Opler (cultural anthropology), Irving J. Saltzman (psychology), Stanley M. Sapon (programed instruction), Henry Lee Smith (culture). Included also are six short reports which summarize and interpret discussion at the seminar. (KM)

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SEMINAR IN LANGUAGE AND LANGUAGE LEARNING

FINAL REPORT

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INTRODUCTION

This is a report of a two-week seminar held at the University of Washington from September 3-14, 1962. The seminar was concerned with evaluating and further developing the Department of Romance Languages' graduate program in Language and Language Learning.

The Ph.D. program itself was initiated in 1959 because of the general awareness of the need and feasibility of strengthening the training usually received by those members of the profession who were expected to organize the teaching of foreign languages in Universities, colleges and high schools. The program was interdisciplinary in nature, providing study in a Romance language and literature, Romance and general Linguistics, Psychology and Statistics. It was felt that such a program would ultimately help improve second language learning at all levels.

After the program's first three years, it seemed appropriate to evaluate its results and impact and to examine in detail the various roles that such a specially trained person could play in American education. Of particular interest were his roles as a research specialist in the various aspects of language learning and as a conditioner of the attitudes and perspectives of students toward foreign languages and cultures. The seminar was planned to provide discussion from specialists in Linguistics, Literature, Psychology--including the recent developments in Programmed Instruction--as well as Cultural Anthropology.

Ten work-papers were solicited and distributed, before the seminar, to participants representing the various fields. Rapporteurs were asked to summarize and interpret the discussion from the point of view of each of five specialties. During the seminar, discussion focused around three distinguishable but not independent topics: curricular recommendations, the interrelations of various disciplines, and the particular skills and qualifications that might be expected from the product of such a program. Three sub-groups met periodically to consider each of these questions, and their considerations were integrated in a final report. The ten work-papers are presented in Section I, the five reports are presented in Section II and the integrating summary is presented in Section III.

Although the idea of holding a seminar grew out of a local program, it was planned with a broad enough scope to interest those responsible for language teaching in other institutions who may be concerned with the development of more comprehensive training.

WORK PAPERS

LINGUISTICS AND LANGUAGE TEACHING

Dwight L. Bolinger

I. Introduction

Let me begin by saying what I believe the program should *not* include. I take it that we do not have here merely another Area Program under another name, where the students pluck courses from every imaginable discipline--history, sociology, literature, art, music, language--with the sold amalgam being the fact that all are simultaneously manifested by members of one speech community at some particular latitude and longitude. If this assumption is correct, then certain things will have to be excluded to avoid the risk of dilettantism. I assume that the title of the program means what it says, that its aim is to teach the teachers and supervisors of foreign *language*; my conclusions and exclusions follow from this assumption.

The traditional allied fields in foreign "language" departments have always been literature and language, with literature in most cases receiving the major attention. It is inconceivable that the Ph.D.'s under this plan should receive less training on the language side than they did before. From the language department's point of view, then, comparing it with the traditional state of affairs, the new Ph.D.'s will be getting less literature--quite possibly none at all as part of their training explicitly under the plan. This needs to be stated frankly, in the conference if not outside it.

The issue as I see it is simply this, and I cannot conceive of one whose interests are *language* in all its aspects disagreeing in any fundamental way: Language is the handmaiden of *all* disciplines, and should no more be wedded to belles lettres than to metaphysics, symbolic logic, history, political science, theology, or home economics. One can explain the historical reasons for the concurrence of literature and language, in the erstwhile restriction of language study to the study of ancient documents. This relic of classical antiquity no longer weighs on us. Our attitudes toward language have changed. If they had not, these work papers would not have been solicited. Part of the change has been the realization that while belles lettres and language overlap, neither one includes all of the other. Language teachers deserve to be trained as language teachers. Literature teachers deserve to be trained as literature teachers. The two are not the same, and this program is addressed to language.

In place of the traditional allied fields of literature and language, I see here the allied fields of language and aids-to-the-teaching-of-language. It is a Language and Area Program with a different Area.

By the "Language" part of the program I understand concentration in one language (possibly more) sufficient to bring a respectable command of it. I do not think that you want your Ph.D.'s only to know "about" a few languages. They cannot appreciate the full range of difficulties that learners of a language must face unless they have faced them themselves. We accept it as almost axiomatic nowadays that it is better for undergraduate students to learn one language thoroughly than to learn two superficially. The same is true of your graduate students. They should themselves be qualified to do exactly what they are to train others to do: teach a class in a particular foreign language; in fact, if they are to be models to the models, they must be especially well qualified.

The Area field includes the discipline inclusive of language, linguistics; the disciplines closest to teaching, psychology and programmed learning; and the inclusive, plus one included, discipline of culture, anthropology and literature. Since linguistics is only one of several, I adjust my recommendations accordingly.

II. Courses

I take it that the program is to be mainly a realignment of old courses (some of which may be revised) plus a very few new ones. I shall therefore try to visualize what the course offerings might be, in terms of a modification of what is probably being offered now, rather than in terms of innovations from top to bottom.

1. Major language. This should include, probably, all the properly linguistic courses in the major language that offer graduate credit: the synchronic structure of its standard form (courses in phonology, morphology, and syntax), its antecedents and development (historical grammar), and its variants (dialectology). In addition there should either be a new course having to do with a structural comparison of the language with English (assuming that the program is to serve those who will be teaching native speakers of English), or, if courses already being offered in the structure of English (or whatever is the native language) are adequate, these could be used instead. I do not believe that this part of the program should be set up in a vacuum on the supposition that the individual can make his own applications later; structural comparison--and I mean its practice, not just its theory--is the main contribution of linguistics to the whole plan, and needs to be based on concrete intentions: Candidate A to teach Language R to native speakers of Language T.

These courses in and around the target language should presuppose, as they normally do, a certain prior level of achievement in the language. Inasmuch as we are recommending proficiency rather than credits as a general policy, it might be a good idea to start the reform in our own household: in place of, or in addition to, the equivalent of an undergraduate major in the language, a demonstration of fluency and literacy in its use.

Of the two solutions--structural comparison and existing courses in English structure--I urge the former as a better way to shed light on the pedagogical problem that each point of conflict between native and target language poses. The student must be kept reminded that he is not comparing two languages to satisfy his curiosity about them, but as a way of finding out what are the points that need to be taught and how best to teach them. A special course can then embody principles and methods. It is better to take up the problem of the conflict between Spanish /r/ and English /r/, and the problem of how best to resolve that conflict, in the same course, than to divide the two and risk the possibility of getting one presented and not the other, and the certainty of not having them presented as two sides of a single question--which they are, as far as the program is concerned. This course could be made one of the most fruitful of all if taught with the point of view that plenty remains to be done, even in the most-taught languages, in settling on the points of conflict. In fact, this kind of comparison is the most illuminating where the two structures themselves are concerned, since it reveals facts about them that we do not suspect until we are compelled to bridge them. But I return to the importance of learning the what of the dissimilarity and the how of teaching it at the same time. Each point has its trick; we cannot generalize about all of them. Dissimilarities are usually qualified in some way, and the trick is to find the qualification. We can discover and describe the difference between Spanish /r/ and English /r/; the trick is the qualification that English does have a flapped sound, in some environments, like that of Spanish /r/--I use Donald Bowen's totter they for tarde. There are similar tricks-- similar exceptions to absolute difference between two languages--in most points of conflict; they need to be exploited, and can best be exploited if we keep the what and how together.

Even with the course in structural comparison, it might be well to include something from the courses already offered in the structure of the native language. If there happens to be a course in the teaching of English as a foreign language, especially if aimed at native speakers of the language which is here to be the target language, it might well be integrated into the program.

2. Allied field, aids-to-the-teaching-of-language. My concern here is only with the offerings in linguistics. I assume that there will be prescribed courses in psychology, anthropology, and certain aspects of culture, and if courses in the major language comprise about half of those taken, this means that requirements in general linguistics will have to be pretty limited-perhaps only six semester hours or so. How this is handled will depend on how much of a general nature can be included in the courses in the major language, but I shall describe the points that need to be taught, and leave their distribution to administrative convenience. What follows could, for example, be divided between two courses, one an introduction to linguistics (to take advantage of present offerings and avoid duplication) and the other an Application of Linguistics to the Teaching of Language, though I am inclined to favor keeping most of the applied matters in the Structural Comparison course already mentioned, to maintain as practical and untheoretical an orientation as possible.

III. Linguistic Themes

As the program is not intended to train specialists in linguistics but specialists who will in turn train and supervise nonspecialized teachers of foreign languages, it should be planned to train linguistically in breadth but not in depth, except that a small amount of training in depth in some selected sub-field should be included as a sample of "doing" over and above "knowing about." I take it that the question of subject matter from the field has to do with the broader objective, and that of forms of research mainly with the narrower one. This does not exclude research in the application of linguistics to the teaching of foreign languages, and I shall include, for the latter, some suggestions about topics that involve linguistics.

The broad training, as I conceive it, consists of an unlearning stage and a learning stage. The first is therapeutic: the student is taught to recognize popular misconceptions about language. The following need to be touched upon:

1. The relative positions of precept and description: grammar as a way of making people behave, and grammar as a way of telling how people behave. Suggested topic: a study of any of the numerous attempts to bring linguistic behavior in line. For Spanish, this might include the successes

and failures of the campaigns for /v/, or *usted* or *tu* vs. *vos*; or the more general question of Hispanic attitudes toward authority.

2. Notions about the structure of language: e.g., Languages are words put together to form sentences." It is hard to put in a nutshell the kind of concept we want to replace one like this, without incurring in the same kind of fallacy; but I hazard "Languages are a reciprocal activity between pre-formed sentences learned as wholes, and recurrent partials of those sentences built up into new wholes; the rules of the activity are more central to language than are the coordinates of the activity." I do not mean that the instructor stands up and makes this pronouncement, but that he identifies the false notions and offers examples to counter them, leaving the mature concept to the accumulated evidence of the entire course. Suggested topics: theories of the nature of language; examples of holophrases in English; bondage and freedom; concepts of the sentence.

3. Notions about the kinship of languages, e.g., "All languages are alike," the fallacy of equivalent codes. In its most familiar yet most complex manifestation, this is exemplified in the incommensurate coding of experience: *brush-Burste*, *Pinsel*; *soil*, *earth*, *ground*, *floor* ~ *suelo*, *tierra*, *piso*; holes in the semantic spectrum like the one left by the abandonment of *to* *err* and only recently filled again by *to* *goof*. Our course should not neglect the lexicon as linguistics courses tend to do nowadays, but obviously nonequivalence needs to be demonstrated in other areas too. Included here should be the most striking deviations from English form that we can lay our hands on: phonemic tone, differently organized pronominal and number systems, infixation, etc. As false notions stem to some extent from the categories of a generalized Latin grammar, we can sharpen the appreciation of them by calling attention to covert classes in English of which native speakers are likely to be unaware: mass, count, and plural; animate-inanimate; theme-rheme order; covert negation; etc.

4. Language and logic. "Logic" in this connection needs first to be broken down into "what is natural and reasonable" and "what is internally consistent," and the first of these thrown back into the examples of the preceding paragraph. For the second, topics such as the inconsistent hyperurbanisms noted by J. N. Hook (*Word Study*, Feb. 1951) are good medicine.

The learning stage is of course the longer one. I conceive of it in turn as divided into two phases, an "appreciation" phase and a technical phase. More important than any body of knowledge in leading to empathy with other peoples is sympathy toward them. The obvious linguistic path to understanding is dialect geography, and since it is the easiest of the linguistic fields for the beginner to understand, I would introduce it first. Practically any class nowadays contains speakers from different areas. Their differences can be quickly exploited to show variation in language by noting regional pronunciations and regional usages: potentially leveled contrasts like *cot*-*caught*; deviations in the paradigms like *dived*-*dove*; lexical preferences liked *kerosene*, *coal oil*; avoidances resulting from dialect conflicts, like *had* *swum*; uncertainties resulting from mixture, like *greased*-*greazed*; specializations like *bust*, *passel*, and *gal*. Any Atlas list will serve to prime the instructor for this, and the result--showing differences in a context of similarity, where the student expects everyone to be the same--has more impact than comparing two separately compartmentalized languages, and teaches the student to appreciate the universality of differences in human behavior.

Technically, the student should be familiar enough with each of the following to know where and how to look for further information if he needs it:

1. The structural hierarchy of language: nesting of sentences within discourses, of morphs within sentences, etc. This includes an understanding of each level in the hierarchy: distinctive features, phonemes, morphemes, constructions, and the intonational matrix. Here is where the most substantial amount of time will have to be spent; it is also the area about whose inclusion there can be no disagreement.

2. The physiological basis of speech. This is important not only for the mechanics of speech production, which every teacher must be able to explain and put to use as a model, but also for its implications: older teachers need to be retrained out of an obnoxious mentalism that makes them regard slow learners as stupid, on the assumption that they don't "get the idea" when the problem is really one of "performing the act."

3. The physical basis of speech. This is least important in itself, but most important to show the kinship of linguistics to the physical sciences Also I find spectrography and speech synthesis to be immensely appealing to our generation of science-fiction readers. It is worth including to whet the appetite.

4. Linguistic change. Some venture into diachrony is called for to enrich the appreciation of diversity. Examples of the fragmentation of Latin will serve, although less needs to be done here since the ideas have been pretty well popularized. I would look for some phenomena in flux in English at the present time (e.g., the -ed adjectival suffix or the progressive disuse of the pluperfect subjunctive) to make the issue livelier.

5. Language and writing. Some notion of different systems of writing (what they include, what they leave out, what they add) will aid in understanding the derivative nature of writing.

6. Meaning. This must be included if only to end by excluding it. The question is too insistent in students' minds to ignore it. Perhaps the best way to present it would be to take an example from one sub-field of linguistics to show the steps taken to circumvent it, e.g., the juncture signals in phonological syntax. In any case, the dichotomy of differential vs. referential meaning needs to be explained, and, for the latter, the trichotomy of sign-meaning-denotatum. If the university has a properly taught course in semantics, this assignment could be farmed out.

7. Schools and doctrines. Our students must learn to keep their minds open and seek for themselves. To this end they should be made aware of differences of opinion as well as of the cooperative accomplishments of groupings of linguists. This segment of our field will help toward an appreciation of American contributions to the study of language.

The sampling, in-depth research topics are potentially infinite, but should have one main objective: to show the student how to draw on his own resources to arrive at new knowledge. This means being confronted with a problem, gathering data from native speakers, organizing, generalizing, and testing. The first problems of this type should be predigested ones that the instructor can guide. A microlanguage is set up which the student is asked to phonemicize. Or, more in the line of the kind of original findings a teacher is likely to make, a set of data is presented from which an inference is to be drawn.

A couple of examples from English:

Where did they go?
What would you do?
Why didn't somebody say something?
Which house does the lady want?
How come you didn't eat anything?

"Interrogative-word questions invert the auxiliary and the subject; exception, *how come*."

I thought as much.	It will happen, I hope.
I supposed as much.	It will happen, I suppose.
I feared as much.	etc.
I guessed as much.	
I worry as much.	*It will happen, I worry.

"As much patterns with quotative verbs that may follow their quoted objects."

After these, each student should attempt a full-scale problem that will require the whole series of steps to be gone through, as it should be at least once by each student; if the research topic is to be used for the dissertation, it should involve the major language; if only e.g., as a term paper (in case the dissertation topic is from another field, as it might well be), it could be in the native language and on some topic involving a point of structure, a trait of bilinguals, a particular case of dialect mixture, or anything from any of the sub-fields that have been touched upon. The possibilities here are endless.

Particular research topics in the application of linguistics to language teaching could include the following. (These are general areas which could serve as group or cumulative projects, with individual topics to be assigned). First, secondary sources:

1. A survey of findings from the NDEA linguistics projects. There is a mine of information here that should be brought together and rationalized.

2. A critique of textbooks and official courses of study to see whether they meet standards of linguistic accuracy.

3. A critique of pedagogical writing. Is it linguistically ignorant, linguistically superficial (purveying clichés), or linguistically sound, however limited?

Second, original sources:

1. Research in objectives and their linguistic implementation. If we prize native-like phonetic accuracy above everything else, we are not going to use the same linguistic tools in the classroom as if we gave preference to fluency and intelligibility without worrying about a foreign accent. Similarly if our preference is for well-constructed sentences. Applied linguistics is not an absolute, but depends on ends.

2. Classroom experiments to put linguistic assumptions to the test. For example, is it better to explain a point in the native language of the learners or in the target language? Is it better to avoid reading and writing altogether for a time, and if so, for how long? Is it better to use respelling in a language with a good but not perfect orthography? How effective is laboratory drill by comparison with drill under the direction of informants? Questions like these should be answerable through fairly straightforward experiments, though the answers will vary for different ages and for teachers with different styles. Teachers should know how to find out such things for themselves, and teachers of teachers how to encourage them to do it.

3. Comparative grammars. These, of which we are already getting a few, show points of interference between two languages one of which is to be learned by native speakers of the other. An individual topic might be to study composition written in English by native speakers of Spanish, errors to be collected, classified, and analyzed.

III. Conclusion

It may seem strange coming from a linguist, but I should like to caution against overstating the importance of linguistics to the training of language teachers. I think that to a certain extent linguistics has been used as a club over traditional teachers in order to get them to adopt new ways on which linguistics generally touched but sometimes only obliquely. The traditional teacher did not know linguistics?--he had to admit that he didn't. So here was the prescription for his retraining, and compounded along with the linguistics went a good deal of pedagogical theory that could have been conceived if linguistic science had never been invented. I give some examples of claims of the audio-lingual method that have been presented as if linguistic science originated them or were their chief support:

1. That hearing-speaking-reading-writing is the best sequence in learning a foreign language. This is a tenet borrowed from the old direct method (see Marjorie C. Johnston "Methods of Teaching" in A Handbook on the Teaching of Spanish and Portuguese, Boston 1945 p. 185). In fact, a good deal of the direct method seems to have climbed aboard the linguistics bandwagon. It would be just as scientific, and just as much (or as little) in accord wit what one can deduce from or prove by linguistic science, that the best sequence is a passive-to-active one, with hearing-reading and speaking-writing coupled as indicated. Linguistics has determined, let us say, that the language in question has a reasonably phonemic orthography. Machines are then devised that will make for guided reading in the laboratory: the visual and auditory stimuli are presented simultaneously so that spellings--even the irregular ones--are correctly associated from the start and the student has no opportunity to relate them to anything but the target language. It then becomes possible to present writing simultaneously with speaking. I am not advocating this as a method--only experiment can show whether it would work or not; I merely offer it as something just as consistent with linguistics as the four-step sequence now so heavily advertised.

In broader terms, what I foresee in experiments of this kind is finding a way around our big problem at present, which is that we have no way of preventing students from making mistakes. We can correct them after they have made mistakes, but cannot head off the errors. Exponents of the audio-lingual method are fond of comparing the teacher's role with that of a physical-education instructor. If a novice swimmer makes a wrong stroke, his teacher can lay hold of the errant muscle and guide it. All that we can do with a speech muscle is to coax it indirectly.

2. That only situational equivalences will do if equivalences are to be offered at all between the native and target languages. In practice--that is, in the insistence on no "intermediary English"--this is another offspring of the direct method, but the new twist comes from linguistic evidence of nonequivalence between languages. The difficulty with this evidence is that it is interpreted in a swing-of-the-pendulum fashion. Nonequivalence is relative, just as equivalence is relative. If we can imagine two languages that formerly were confronted and of which speakers of one had to break their heads in learning the other, wherein there were absolutely no points of similarity, and then imagine linguists discovering other languages which shared features and ranges of meaning with the original native language, we might suppose a resulting state of mind in which all the attention was on these marvelous equivalences. Linguistic science neither confirms nor refutes the avoidance of translation. That depends on proofs from other fields.

3. That normative grammar has no place in the FL classroom. That "grammar" to the linguist has to mean something different from what it means for the prescriptivist is obvious from the divergence of their interests. But what is important here is not the supposed fact (which is untrue) but an attitude. Teachers of any foreign language with a dialectal spread are well advised to teach a normalized version of it, which implies normative decisions at the outset. (What is not implied is the set of normative prejudices in the culture, to which mainly just lip service is given anyway. But these are few and not a real problem.) The question of normative grammar is one of morale. If students, or teachers, dislike grammar it is because they associate it with normative grammar. We can overcome this for them by showing them that it is respectable to use grammar not to make people behave but to tell how they behave.

So linguistics does not prove that normative grammar should be shut out of the classroom. It does prove, however, that there is a wider sense of " "grammar" which calls for more attention day in and day out.

Linguists should refuse to collaborate in the exaggeration of their role Modesty is its own reward, and does not incur the blame for other people's failures.

WHAT THE FL TEACHER TRAINER OR SUPERVISOR SHOULD KNOW ABOUT PROGRAMMED INSTRUCTION IN THE FOREIGN LANGUAGE FIELD

John B. Carroll

The Organization of This Paper

This paper has two major divisions: I. A General Introduction to Programmed Instruction, and II. Application of Programmed Instruction in the Teaching of Foreign Languages. In the first part, reference to problems of foreign language teaching will be only incidental, since the major purpose is to introduce the reader to programmed instruction as it has developed in the broad field of education. Much attention will be paid to the psychological principles underlying programmed instruction.

I. A General Introduction to Programmed Instruction

What is Programed Instruction?

Programmed instruction is a kind of teaching based on a carefully integrated psychological rationale. It has only a small number of defining characteristics, and it is important to keep these in mind in order to avoid confusion with a number of ideas (e.g., the notion of a "teaching machine") which have somewhat fortuitously come to be associated with programmed instruction. In what follows, we shall be defining not only programmed instruction but also such associated words as program (the detailed series of teaching materials which are prepared in advance and then used to teach a given skill or subject-matter; and programmer (one who prepares a program). We will try always to use the term program in its special sense rather than its general sense.

The defining characteristics of programmed instruction which we shall list are those characteristics which are essential to it. Instruction is not programmed instruction unless all three are present; what may appear to be a program is not really a program unless it has all three of these characteristics.

1. Programmed instruction must be based upon an adequately detailed specification of the "terminal behavior" (that is, new skills, knowledge, or response tendencies) which the programmer desires to produce in students taught by the program.

2. The material of instruction must be organized and presented in a carefully designed sequence of steps such that to the greatest extent possible, each step is made easier by virtue of the material learned in previous steps. As a corollary to this requirement, the steps must also be of an appropriate size for the student to master readily: a student may be ready to take a larger step if he has been properly prepared for it, and thus the program can lead to more efficient learning if sequencing and step-size have been properly attended to in preparing the program. In practice, it is found that the optimal size of step is considerably smaller than usually assumed.

3. The student must have an opportunity to test his mastery of each critical step as he proceeds through the program. The program is so constructed that correct responses are promptly confirmed and the student is

led to understand and correct wrong responses. When the material is properly programmed, simply exhibiting the correct answer will usually enable the student to do this.

Defined in terms of these three characteristics, it is evident that programmed instruction is fundamentally nothing new. It has been said that the methods of teaching introduced by Socrates have much in common with programmed instruction, and this is true if we assume that (1) Socrates had in mind a distinct series of "terminal behaviors" (knowledges, understandings, appreciations) which he wanted his students to achieve, (2) that he ordered the steps of his argumentation in something like the optimal way to promote those terminal behaviors on the part of his students, and (3) that he asked questions at all the right places to allow his students to test their achievements The idea of breaking instruction down into small steps is at least as old as Descartes, who wrote that in studying any subject he found it useful:

". . . diviser chacune des difficultés . . . en autant de parcelles qu'il se pourrait, et qu'il serait requis pour les mieux résoudre."
And further:

". . . conduire par ordre mes pensées, en commençant par les objets les plus simples et les plus aisés à connaître, pour monter peu à peu, comme par degrés, jusques à la connaissance des plus composés; et supposant même de l'ordre entre ceux qui ne se précèdent point naturellement les uns les autres.

It is evident also that a classroom teacher *can* conduct his instruction in the manner of programmed instruction, and that programmed instruction *can* occur in the language laboratory. What the proponents of programmed instruction are fond of pointing out, however, is that traditional instruction often fails precisely because one or more characteristics of programmed instruction are absent. That is, a teacher can fail if he has not made an adequate analysis of the behavior he wants to teach, or if he fails to sequence his presentation properly, or if he fails to elicit and confirm trial responses of students at every critical point in the instruction. This last thing is practically impossible to do in the conventional classroom: even in the so-called "recitation method," only a relatively small number of the responses of one's students can be explicitly tested in a class hour. Confirmation of student responses, however, is relatively easy to arrange for in the language laboratory.

It is because programmed instruction is so difficult to conduct in the traditional classroom that various special ways of conducting it have been devised.

In the first place, the concept of the "*program*" has developed. In practice, the program is a definite series of stimuli (usually visual, sometimes auditory, and they could even be tactual or olfactory if necessary) that are to be presented in some specified sequence to an individual student in such a way as to elicit active responses from the student and inform him of the appropriateness of those responses in the light of the goals of the program. Usually the program is divided into "frames"; each frame may present some new piece of instruction, and in any case calls for one response or a small number of responses from the student.

Secondly, various special *presentation devices* have come into use. Some programs are presented in the form of books: "programmed textbooks."

In these, the "frames" are printed on successive pages in such a way that the student is encouraged to make a response to one frame and confirm it before reading the next frame. Other programs are printed on sheets of paper or continuous folded forms that can be used with specially designed "teaching machines" which expose the program frames one by one. Some teaching machines are even more complicated, accepting programs prepared on magnetic tape (for auditory stimuli) and/or film (single frames or sometimes even moving pictures). In principle, a teacher might be used as the presentation device for a program, but most programs are designed for use without a teacher, and in this sense they are said to be "self-instructional." Indeed, one of the advantages claimed for programmed instruction is that it saves the teacher from the ordinary repetitive routines, and thus allows more time for the creative aspects of teaching.

It is characteristic of most of the standard presentation devices that they allow the student to go at his own rate. Students may take various amounts of time to study or to respond to items, as long as eventually they make the desired responses. Presentation devices can of course be designed to require rapid responses if rapid responding is specified as one aspect of the terminal behavior desired, but basically, the requirement that students should proceed step by step through a program, testing themselves as they go along, means that instruction has to occur on an essentially individual basis, in contrast to the conventional classroom procedures in which it is assumed that all students are following along with the teacher at identical rates. Since there is considerable variability in rates of progress, programmed instruction brings out into sharp relief the administrative problem of how to deal with students of different degrees of learning ability. If it is intended that all students will eventually achieve the same level, and no more, the length of time allotted for instruction will have to vary for individual students; if it is intended that all students will be under instruction for the same amount of time, more elaborate provisions (possibly including longer programs or a greater variety of programs) will have to be made for the fast learners.

A word should be said here about the error of assuming that there is a necessary connection between programmed instruction and "teaching machines." Even if we pass over the possibly unfortunate connotations of the term teaching machine, we must still stress that programmed instruction is only incidentally associated with teaching machines. Teaching machines constitute only one of the possible ways of presenting programs; programmed textbooks or even "programmed instructors" may be equally effective. Indeed, some experiments have found that programmed textbooks are in certain circumstances more effective than teaching machines. On the other hand, it is almost inevitable that some kind of mechanical or electronic aid (such as the tape recorder) is desirable for the presentation of auditory stimuli; there need be no fear of the "teaching machine" if it actually aids in the presentation of a teaching program. It is the program, not the machine, that teaches.

It may be useful to conclude this section by mentioning a few examples of teaching procedures that are not programmed instruction, although some have thought them to be.

Most common among these is any procedure which merely elicits answers without being designed for teaching. A list of test questions to which the student is required to respond without being told whether his answers are correct will teach, if at all, only fortuitously. A similar list presented in such a way that the student is informed of the correctness of his answers after some considerable lapse of time (even a few minutes) will teach somewhat more, but not as effectively as when the information is given almost immediately after each response. Some "workbooks" are very close to programmed instruction, but others fall far short because they fail to pay attention to how they impart information, how they sequence the exercises, or how the student's answers are confirmed.

Even though a great deal of care may go into the preparation of a film, a tape, a television program, or even a lecture, these forms of instruction cannot be regarded as programmed if they do not require active response on the part of the student and confirm the correctness of his response.

Finally, a set of directions, even though they may evoke active response from students, is not necessarily programmed instruction. Merely telling a student to do a series of things will not necessarily teach him anything.

Programmed Instruction: A bit of history

Although the basic ideas of programmed instruction are not novel, the conscious formulation of these ideas and the actual realization of their potential were slow in coming. Various kinds of instructional machines have been offered to the public ever since 1809 when the first U.S. patent for an educational device was issued, but few if any of these machines were accompanied by instructional programs that incorporated all the essential features of programmed instruction in the contemporary sense. The psychologist Sidney Pressey did interesting work with "teaching machines" as early as 1924, but his programs were essentially lists of test questions and were not specially planned for teaching. Various instructional devices developed by the U.S. Armed Services in World War II incorporated some aspects of programmed learning, e.g., detailed task analysis, immediate confirmation of results, and shaping of behavior by successive approximations, but programmed instruction did not at that time become organized as a thoroughly integrated technique in education and training. Even the language laboratory methods that developed in FL teaching shortly after World War II cannot be regarded as representing a full-blown technique of programmed instruction, because the language laboratory tended to be looked upon chiefly as a place for drilling materials originally presented by a teacher in the classroom, and the idea of small-step programming was not adequately realized in the actual teaching materials.

Credit for arousing psychologists and educators to the possibilities of programmed instruction goes to B. F. Skinner, professor of psychology at Harvard University, who published in 1954 an article entitled "The Science of Learning and the Art of Teaching." Here Skinner set forth some principles of learning that could form the basis of programmed instruction, and reported early experimental work in the teaching of arithmetic by a programmed teaching device. But the idea of programmed instruction met with certain kinds of resistance: some were afraid that it would make learning too routine and uncreative, or that it would gradually replace the teacher; others saw practical difficulties in developing programs and reliable presentation devices. Skinner himself at first found considerable difficulty in getting either philanthropic foundations or commercial organizations interested in supporting his work. It was not until about 1958 (partly, no doubt, as a consequence of the first Soviet success with space flight) that the public awoke to the possibilities of programmed instruction as a means of securing better school learning. It was about this time, too, that commercial organizations began to see the profit-making possibilities in programs and devices for presenting them. Some of the first large-scale experiments in programmed instruction were in the training of industrial employees.

The leaders in programmed instruction have by and large been psychologists and other individuals whose convictions about the possibilities and values of programmed instruction have stemmed from their awareness of the psychological principles underlying it. Among the leaders in the field, besides Skinner himself, have been the following:

John Barlow, psychologist, director of the Earlham College project in programmed instruction, where many of the first programs were developed.

Norman Crowder, developer of "intrinsic programming" and the "scrambled book" technique, also designer of the Autotutor, an elaborate machine for presentation of branching programs.

Thomas Gilbert, psychologist, founder of the Journal of Mathetics (1962) and closely identified with certain advanced techniques of programming.

Robert Glaser, psychologist, author of numerous articles about programmed instruction and leader of a team of programmers; co-editor, with Lumsdaine, of a source-book on programmed instruction.

Lloyd Homme, psychologist, one of the founders of Teaching Machines, Inc. one of the first commercial organizations in the field of programmed instruction.

Kenneth Komoski, educator at the Collegiate School of New York, President of the Center for Programmed Instruction, Inc., a nonprofit organization established with the aid of the Carnegie Corporation of New York to promote programmed instruction.

A. A. Lumsdaine, psychologist, long associated with research on training devices and audio-visual aids; co-editor, with Glaser, of a source-book on programmed instruction.

Harry Silberman, psychologist at the System Development Corporation, who has been a leader in the conduct of research on programming variables and in the development of presentation devices controlled by high-speed computers.

Among the books and other sources that are particularly valuable for getting acquainted with and keeping abreast of the whole field of programmed instruction are the following (including several publications specifically in the field of foreign language teaching):

Center for Programmed Instruction, Inc., Programs, '62: A Guide to Programmed Instructional Materials Available to Educators by September 1962. Washington: Govt. Printing Office, 1962.

Foltz, C. I. *The World of Teaching Machines*. Washington: Electronic Teaching Laboratories, 1961.

Fry, E. B., Bryan, G. L., and Rigney, J. W. "Teaching machines: an annotated bibliography." *Audio-Visual Communication Review*, Vol. 8, Supplement 1, 1960.

Green, Edward J. *The Learning Process and Programmed Instruction*. New York: Holt, Rinehart and Winston, 1962.

Holland, J. G., and Skinner, B. F. *The Analysis of Behavior: A Programmed Textbook*. New York: McGraw-Hill, 1961.

Lumsdaine, A. A., and Glaser, R. *Teaching Machines and Programmed Learning: A Source-Book*. Washington: Department of Audio-Visual Instruction, National Education Association, 1960.

Morrill, Charles S. Teaching machines: a review. *Psychological Bulletin*, 1961, 58, 363-375.

Morton, F. Rand, and others. *Programming of audio-lingual languages skills for self-instructional presentation*: selected work papers presented at the First Conference of Language Programmers, April, 1961, Ann Arbor, Michigan. Ann Arbor: Univer. Mich. Language Laboratory, 1962.

Rigney, J. W., and Fry, R. "Current teaching machine programs and programming techniques." *Audio-Visual Communication Review*, Vol. 9, Supplement 3, 1961.

Ross, Wilbur, L., Jr., and others. *Teaching machines*: *industry survey and buyers' guid.*. New York: Center for Programmed Instruction, Inc., 1962.

Silberman, Harry F. *Self-teaching devices and programmed materials*. Santa Monica, Calif.: System Development Corporation, 1962. 20 p. (SP-Series No. 663).

Bulletins and Periodicals

AID (*Auto-Instructional Devices*). Published monthly by INRAD, Educational and Training Methods Division, P. O. Box 4456, Lubbock, Texas.

Audiovisual Instruction. Published bi-monthly by the Department of Audio-Visual Instruction, National Education Association, Washington 6, D.C.

MLAbstracts. Issued by the Department of Foreign Languages and Literatures, Orange County State College, Fullerton, Calif.

Programmed Instruction. Published bi-monthly by The Center for Programmed Instruction, Inc., 365 West End Avenue, New York 24, N.Y.

Journal of Mathetics, published bi-monthly by The Mathetics Corporation, Box 3232, University, Alabama.

As of this writing, in 1962, it must be said that the field of programmed instruction has not as yet found a settled place in American education, nor in American industry. While it has grown out of infancy, it is like a vigorous, but somewhat wayward and undependable child, equally likely to succeed admirably or fail miserably. It is too early to say how well American schools are going to accept programmed instruction and the accompanying paraphernalia of teaching devices. However, Ross and his co-authors in Teaching Machines: Industry Survey and Buyers' Guide predict that the school year 1962-1963 will see fairly large-scale tryouts of programs in the larger and wealthier schools, particularly if results of experimentation in the year 1961-1962 are promising and reports are circulated. Nevertheless, they note that schools expect to use teaching devices only as supplements to classroom instruction, and they predict that shorter, "topical" programs keyed to existing textbooks will have greatest early success.

Actually, relatively few instructional programs are publicly available. The above cited Programs, '62 was able to list only 122 programs, spread over many different subject-matters and grade levels, which would be available commercially by September, 1962. These programs, to judge from the information and sample pages included in this publication, vary widely in length and quality. Not all of them truly conform to the definition of programmed instruction set forth here, for some programs are merely lists of questions. Only a handful (about 20%) contained more than 4000 frames, and few programs were designed to occupy more than about 30 or 40 hours of a student's time (the equivalent of about 6 to 8 weeks of instruction in a high school). In the modern foreign language field, the following 10 programs were listed:

French:

Elementary French (Rickert and DuBois); General Programmed Teaching Corporation; 2510 frames; 18 to 23 hours to complete program. (No tapes).

German:

German A (Ellert); Encyclopedia Britannica Films, Inc.; 5050 frames with 12 7" tapes requiring 23 hours); 60 to 75 hours required to complete program.

Modern Language Series: German (Ventola and Wilson); TMI-Grolier; 3643 frames; 17 to 30 hours required to complete program. (No tapes).

Hebrew:

Modern Language Series: Modern Hebrew (Bloom and Smith); TMI-Grolier; 1900 frames; 15 to 25 hours required to complete program. (No tapes).

Russian:

Modern Language Series: Basic Russian Reading (Wilson and Ventola); TMI-Grolier; 1994 frames; 18 to 22 hours required to complete program. (No tapes).

Spanish:

Automated Spanish (Barcus); Denver Public Schools; 2016 frames; 20 hours to complete the program. (No tapes).

Spanish A (Sapon); Encyclopedia Britannica Films, Inc.; 6602 frames, with 22 7" tapes requiring 39 hours); 50 to 85 hours required to complete program.

Introductory Spanish (Sullivan); Encyclopedia Britannica Films, Inc.; 3276 frames with 7 7" tapes requiring 15 hours; 40 to 45 hours required to complete program.

Spanish U-3002 (Univox Institute, Inc.); Universal Electronics Laboratories Corp.; 2160 frames; 30 to 36 hours required to complete program. (No tapes).

Modern Language Series: Basic Spanish Reading (Wilson and Ventola); TMI-Grolier; 3400 frames; 17 to 30 hours required to complete program. (No tapes).

This is a good showing for the modern language field; in fact, in terms of the estimated number of instructional hours required, these ten modern language programs accounted for 13% of the total number of instructional hours required for 72 programs in all areas for which data were given (programs in mathematics accounted for 49% of the instructional hours). It is known that many other foreign language programmed materials are in preparation.

At this early stage in the history of programmed instruction we are not able to say much about the evaluation of programs. Research data on the actual effectiveness of programmed instruction are meager, unless one is willing to take at face value the fact that many students do indeed successfully complete programs, thereby demonstrating at the very least their ability to respond successfully to the programmed materials. In 1961, a joint committee of the American Educational Research Association, the America Psychological Association, and the Department of Audio-Visual Instruction of the National Education Association released a statement advising prospective users how to make preliminary evaluations of programmed materials; the statement stressed the importance of examining the program "to determine what the student is required to do and whether the student's responses reflect the kind of competence which the educator wishes to achieve." But it also urged that users press publishers for information about "what students actually learn and remember from the program." Educational Testing Service in 1961 received a grant from the Carnegie Corporation to enable it to make methodological studies of how to evaluate programs, but a report cannot be expected until about 1963.

Although it can be argued that a low error rate is desirable, the mere fact that a program has a low error rate is no guarantee that it teaches anything, for it may be essentially a series of easy directions or highly prompted frames. One proposal for evaluating programs is to extract the "unprompted" frames (that is, frames for which the answers are not suggested by material in the frame itself) and administer them to students as a test of achievement after they have been through the program. In general, the results of such a test would be useful for evaluating the program, but if the unprompted frames still do not represent the terminal behavior set forth in the specifications for the program, the test will not provide evidence as to the degree to which the terminal behavior has been acquired. The solution is either to modify the frames in question before putting them into a test, or to construct an appropriate test of terminal behavior supplementary to the program in order to test transfer.

A major problem besetting the field of programmed instruction is the cost of creating and testing programs. Estimates of costs range from $4 to

$25 per frame, so that an average sized program with, say, 2000 frames might cost anywhere from $8000 to $50,000. Obviously, creation of programs appears to be economically feasible only where high-volume sales can be expected.

Fundamental Ideas of Programmed Instruction

We have said that programmed instruction has three essential characteristics: (1) it is based upon a precise analysis of the behavior desired; (2) it seeks to organize the instruction in the best possible sequence and in the best possible sizes of steps to produce optimal efficiency in learning and (3) at every critical point in the program it provides the student with an opportunity to check his learning. We have also said that the warmest supporters of programmed instruction have been psychologists who are convinced of the soundness of the psychological ideas behind these characteristics of programmed instruction. It is not necessary to have a thorough knowledge of psychology in order to understand these ideas; they are simple and obvious once they are understood.

The fundamental psychological idea underlying programmed instruction is that it is possible to describe and classify the behavior of an individual, and cause consistent changes in it by certain definite procedures. This idea is based upon the study of overt, observable behavior--that is, muscle movements of various kinds, including those producing speech--because this kind of behavior is easiest to deal with scientifically. Nevertheless, the psychologist has reason to believe that the principles underlying overt behavior are also applicable to such forms of covert behavior as "thinking" and "imagining," which are observable, if at all, only with difficulty.

All overt behavior may be classified under two major headings: respondents and operants. Respondents are reflexes of various kinds (like the knee-jerk reflex, the pupillary reflex to light, and the salivary reflex) which are largely involuntary and subject only to the kind of conditioning (called "classical conditioning") studied extensively by the Russian physiologist Pavlov. Operants, on the other hand, are responses (generally of the skeletal musculature) which are subject to another kind of conditioning, called operant conditioning, which occurs whenever the probability of the occurrence of a response is under the control of stimuli that follow the response in some contingent relationship. The contingent relationship is one in which such a stimulus always follows the response within a short time, or follows it more often or more promptly than pure chance would allow. Any stimulus that causes these responses to increase in probability, i.e., occur more frequently, is called a reinforcer.

In common sense language, any response that can be rewarded (reinforced) and that as a result tends to occur more frequently, is an operant. Most of the responses we are interested in teaching are operants, and in any case, the rationale of programmed instruction applies more directly to operant conditioning.

If one desires to change behavior, one way to do it is to wait for desired responses to occur and then reinforce, or reward them. But it is not always necessary simply to wait for responses that one can reward; one can "prompt" them in some way, either by presenting a direct stimulus for their occurrence, or by presenting some related stimulus which will tend to evoke them. (For example, one can cause the student to read a particular work, or think of a word that rhymes with a certain word.) Further, one can shape the behavior desired by first rewarding any response that has some resemblance to the desired response, then rewarding only responses that come closer and closer to the precise response desired (sometimes this process is called "changing the topography of the response.")

Let us carry this analysis a little further to cover the process of forming discriminative behavior. By reinforcing only responses that occur in the presence of a certain stimulus, symbolized S^D, and withholding reinforcement from responses that may occur in the presence of another stimulus, symbolized S^Δ (read "S-delta"), it is possible quite readily to cause the individual to discriminate between S^D and S^Δ (if, of course, the discrimination is within his sensory capacities).

There are many other psychological concepts in the system of behavior analysis being drawn on here--a system that is largely the work of B. F. Skinner, but the few ideas presented above will serve most of our purposes in the consideration of programmed instruction. There are, to be sure, controversies about the adequacy of this system of behavior analysis, but it is doubtful that they concern matters that will affect the success of programmed instruction in any significant way.

As applied to programmed instruction, these psychological ideas can be translated into the following set of precepts: Decide what responses you want to teach. Arrange matters so that these responses, or approximations to them, will occur on appropriate occasions. Reinforce the desired responses until they occur with satisfactorily high probability. In order to teach a discriminative response, reinforce it in the presence of the S^D and withhold it when you present an S^Δ.

Most of the responses desired in programs teaching subject-matters like history, physics, etc., are discriminative verbal operants. That is, they are verbally-stated "answers" made to specific stimuli. Usually, too, they are operants that can be assumed to occur already in the repertoire of the student before he begins instruction. For example, in teaching the date of the Declaration of Independence we desire to have the student say "1776" (words he already knows) in the presence of the discriminative stimuli "Declaration of Independence, date?" Various means might be used to "prompt" such a response, e.g., by having the student read a poem about "The Spirit of '76" or by pointing out the similarity of sound in independence and seventeen seventy six. In programs for teaching foreign languages, the responses desired are also discriminative verbal operants, but they are also responses that (at least in their complete form) are not initially in the repertoire of the student. Hence, a considerable amount of "shaping" of these new responses must be done.

Programmed instruction assumes that the stimuli intended as reinforcers really act as reinforcers, that is, that they will operate to increase the probability of correct responses. For students who are already "motivated" to learn, any signal that a particular response is correct appears to act as a reinforcer. Furthermore, for these students, the reinforcing of correct answers tends to have a generalized effect in the sense that it reinforces their continued attention and effort. It has been found that students work more eagerly and enthusiastically on programs in which a large majority of their responses are correct than on programs in which they make many errors. And other things being equal, learning is more efficient in the former kind of program, if only because it takes students time to make errors and correct them.

At the same time, the reinforcements or rewards provided by the confirmations of correct responses in a course of programmed instruction do not of themselves "motivate" the student. The student must "want to learn" for some reason or other--either for "intrinsic" reasons (e.g., that the knowledge gained will be useful to him, or that he enjoys this kind of learning) or for "extrinsic" reasons--that he must pass a requirement, that he must prove to himself his ability to learn, that he wants to get high grades, etc. Confirmations of correct responses are valuable to the student in three ways--first, they make him aware of general progress in learning; second, they give him knowledge of exactly what responses are correct; third, (if he is "motivated"), they may also enhance the probability that on any future occasion when an appropriate stimulus is presented, the correct response will be made.

Programmed instruction should not, however, (we repeat) be expected to motivate a student who does not wish to learn or sees no utility in learning, unless special attention is paid to the kinds of rewards that are provided. The rewards constituted by confirmations of correct answers must sometimes be supplemented by more tangible rewards (money, tokens exchangeable for gifts, candy, etc., social recognition and approval). Such rewards have been found to be particularly necessary in the case of very young children (say, in the first grade).

It is observed that one of the ways in which the organization of programs can aid in motivating students is to provide clear sub-goals in the course of the program. A program organized in a series of units (say, 50 or 100 frames apiece), each with a definite set of objectives which are clearly part of those expected in the eventual terminal behavior, is more acceptable than one which presents a seemingly endless series of frames (often counted in the thousands) not organized in any obvious way. As a corollary of this, it is useful to inform students exactly what the subgoals of a unit are, so that they can recognize when they have achieved them and feel rewarded accordingly. It helps even to inform students concerning the organization of small sets of frames. For example, in teaching Mandarin Chinese by programmed instruction the writer informed the students at the outset that there are 4 tones in Chinese, and that besides recognizing the tones themselves, they would have to learn the numbers assigned to these tones, and the diacritical marks used to represent them. Only then did the program proceed to take up the tones one by one.

There are many other psychological considerations which should be understood if one is to make effective use of programmed instruction.

Efficient programming demands that the student should spend most of his time practicing the responses specified in terminal behavior, or in responses that actually lead up to this terminal behavior. He should not be allowed to make incomplete or partial responses, (except such as are demanded by the program) and he should not spend his time making responses that are not included in terminal behavior or are only remotely relevant to it. If, for example, the desired terminal behavior is clear and accurate oral production of foreign words and expressions, the student must be required to make clear, audible responses while he is working through a program, not mere mutterings or sub-vocal responses. If the student is learning to spell, he should be required to say or write letters; he should not be required to perform irrelevant activities such as verifying that a particular word has 12 letters.

On the other hand, some of the responses specified in terminal behavior may be "passive" responses such as discriminations, meaning responses (identifying the meaning of a stimulus), and the like. In this case, it is not necessary for the student to be required on every occasion to make an overt demonstration of his response. If the student has been trained to respond, if only covertly, to every occasion requiring a response, learning can be more efficient, as Roe (1962) has shown, by not requiring active responses. On the other hand, the making of active responses is to be encouraged during the experimental tryouts of a program, for in this way the programmer can easily find out which frames have too high an error count and judge whether they need revision.

Frequent testing of student responses is advantageous because it continually requires the student to be alert. In the parlance of the analysis of behavior, it reinforces "observing behavior." It keeps the student listening or reading attentively as desired.

The steps of a program (often called "frames") must be properly sequenc and adjusted in "size." In each step, we desire the student to make the maximum amount of progress possible toward the goal specified for terminal behavior. The intimate connection between proper sequencing and proper sizi of steps has already been mentioned. To recapitulate: if the goal of programmed instruction is maximum efficiency, the student can be helped toward his goal by arranging the steps so that he is optimally prepared for each step, at the same time making the steps as large as possible without creating significant difficulties in learning. Many writers and practitioners in the programmed instruction field appear to believe that steps should be as small as possible; some have probably erred in the direction of making the steps too small. (For example, in an experimental program that has come to the attention of the writer, 29 steps are used to teach the pronunciation of the first letter of the Russian alphabet and the printing and writing of capital and lower case forms of it. This seems excessive in view of the considerable transfer that can be expected from properties of the first letter of the Roman alphabet, and on other grounds.) It is possible to "insult the intelligence" of students, or at least to try their patience. In practice, the programmer can safely err in the direction of making steps too large, for in experimental field trials he will quickly find which steps are too large, whereas he is unlikely to identify steps that are unnecessarily small, because students will perform them without difficulty, just as they will perform steps that are of an appropriate size.

Undue difficulty with a step is ordinarily "aversive" to a student; tha is, it is unpleasant and unrewarding. A student who encounters too much difficulty, other things being equal, will be less enthusiastic about continuing. However, we have found that well motivated students will cheerfully accept difficulty if they are forewarned about it and have reason to believe that the challenge will produce a greater degree of learning.

Step size is particularly important in sequences where one is "shaping" behavior, for it is found experimentally (both with animals and with people) that the organism can progress only a certain amount of the way toward the final goal with each step, i.e., with each reinforcement.

Step size is also important in sequences where one is establishing stimulus-response "chains." A chain of behavior is one where a series of acts A, B, C, . . . are established so that A is the stimulus for response B, B is the stimulus for response C, etc. It is often desirable to use at least one step to establish each link in the chain, and principles of behavior suggest that these chains should be set up beginning at the end. Thus, if one wishes to set up the chain A--B--C--D--E, one starts by establishing the sequence D--E, because E (as the last member of the chain) is presumably the most rewarding (that is, as the last member of the chain its emission is noted as signaling the completion or fulfillment of the act). Then one establishes C--D--E, then B--C--D--E, and finally A--B--C--D--E. This procedure justifies the use of the "backward build-up" in practicing foreign language sentences (the example is Mandarin Chinese, taken from Tewksbury's *Speak Chinese*, p. 46):

Hǎidz hěn tsūngming.
Syǎu háidz hěn tsūngming.
Neìge syǎu háidz hěn tsūngming.
Nyànshùde neìge syǎu háidz hěn tsūngming.

Another principle to follow in deciding upon step size is that a composit response is easier when the separate parts of it have been previously mastered One would hardly dream of asking a student to imitate a sentence like *Leurs enfants habitent ici* before he has had instruction in its separate phonemes, particularly those differing radically from anything in English. The organization of steps is often a matter of arranging for learning of component parts of a composite response before the composite response itself is attempted; the size of step is then dictated by *how large* a component part can readily be mastered in one step by the learner. No definite rules can be given about this, although the programmer should have some notion about the size of the human memory span (about 7 separate well-learned units is the maximum for most people; 3 to 5 separate well-learned units is a much more comfortable span; less than this tends to be wasteful of time).

Finally, learnings are programmed in a series of separate steps in order gradually to withdraw stimulus support in the form of prompts and other artificial ways of evoking desired responses. One of these techniques is called "fading" or "vanishing." For example, if one were teaching the spelling of the French names of the days of the week, one might give them first in the full form (*lundi*, *mardi*, *mercredi*, etc.), then with only their first syllables (*lun-*, *mar-*, *mer-*, etc.), then with only their first letters (*l-*, *m-*, *m-*, *j-*, etc.), and finally as simply a series of blanks to be filled in. At each of these stages, the subject is required to write the full response.

To a considerable extent, the breaking up of learnings into small steps in many contemporary programs (whatever the actual intent of the programmers may have been) seems to have the effect of controlling the time the student spends attending to a particular bit of learning. While it might be true that a student could learn the spelling of the French days of the week in one trial, requiring him to make responses in a series of variant steps forces him to spend more time on this learning and enhances his likelihood of retaining the learning. The same effect is achieved by requiring a student to solve a series of verbal problems covering the same concept. For example, in Holland and Skinner's program The Analysis of Behavior, a series of frames is devoted to applications of the principles of shaping. One of these is the following:

> "If the shot-put coach never reinforces unless the world's record is broken, he (1) *** using successive approximation; he (2) *** have a criterion which, if reached, would direct him to provide differential reinforcement." (Frame 16-15; answers: (1) is not, (2) does.).

Essentially, this frame, like a number of others in the series, provides practice in determining under what conditions the concept of successive approximation applies; the actual responses (the verbal fill-ins) are not item of terminal behavior to be learned, but function as puzzle-solutions to forc the student to spend time on the problem presented, that is, the problem of finding words to cause the statement to make sense according to criteria already learned. One of the best ways of forcing close and attentive reading of a prose passage is to omit a few words here and there to be supplied by the reader (sometimes called the "cloze" technique).

Thus, programmed instruction has at least some things in common with rote learning of the old-fashioned variety. It incorporates planned repetition, and it often supplies mnemonics or associational mediators. (For example, in a program purporting to teach the color codes of the electronic trade, zero is associated with black through the phrase "black nothingness," one is associated with brown through the phrase "one brown penny," etc.)

Nevertheless, major inspiration for programmed instruction comes from concepts of behavior that are relatively new, and that are more precisely stateable than those of traditional theories of behavior. For this reason, it is believed more likely to be successful than instruction based on traditional theories.

Research on Programmed Instruction

In what has preceded, a great many statements have been made as if they were backed up by solid experimental evidence. Most of the "solid experimental evidence" has accumulated in the field of animal learning; extrapolation to the case of the educated human being has been liberal. At the same time, research activity in the field of programmed instruction has been growing rapidly in the last four or five years. According to one writer, "If the extent of our understanding of the learning process were proportional to the rate of increase in articles on programmed learning, most educational problems would be solved within the next decade." (Silberman, 1962, p. 1). Unfortunately, as this same writer observes, "The most popular finding in the studies reported in this period is that no significant differences were obtained among treatment comparisons." (ibid., p. 8). "Beyond demonstrating that a carefully written set of materials will teach if a student will spend enough time studying them, we have little unequivocal evidence for principles of programmed instruction" (ibid., p. 9). It is therefore tempting to summarize the research done so far on programmed instruction with the statement that little of clear value has yet been accomplished, and that it does not seem to make very much difference how one prepares programs as long as care is expended. This conclusion, however, would be a little too hasty.

The degree to which one should control the exact sequence in which the student proceeds through a program has been the center of one of the major controversies in the field of programmed instruction. One point of view, associated most closely with Skinner and his followers, is that every student, regardless of his "ability" or prior training, should proceed through a program in a strictly linear fashion--that is, tackling every frame in order, once; proponents of this procedure try to create programs which allow all students to do precisely this without either undue difficulty or undue boredom. Another point of view, associated with the name of Crowder, argues that fast learners should be allowed to proceed through a program as rapidly as they can, skipping parts which they don't need, while learners who meet difficulties at any point should be given special remedial frames. Thus, students should be allowed to "branch" to parts of the program which are especially suited for them. As yet, there is no clear experimental evidence to allow one to choose between the "linear" and the "branching" techniques, but on the whole it would seem that the flexibility of the branching technique could lead to superior efficiency in teaching; there is no need for a student to waste his time working through parts of a program which present materials he has already mastered. Furthermore, under some conditions a "cyclical" or "recursive" pattern may be more practical and efficient than a straight linear program; in these patterns, the student simply repeats certai segments of a program one or more times until a satisfactory degree of master is attained.

The present writer (Carroll, 1962) has experimented with a cyclical organization of material which seems to have a number of advantages. Each frame is divided into three essential areas: "presentation," "question," and "answer," and the frames are organized into loops (typically of about 40 to 50 frames each). In a "familiarization" mode, the presentation of each frame is as follows: first, the "presentation" area is exposed, giving information or practice on a new step of the instruction; next, the question area is exposed (with the presentation area remaining exposed) posing a question or other task for the student; finally, after the student has made a response, the answer area is exposed (presentation and question areas still remaining exposed) in order to enable the student to verify his response. The initial presentation of each area can be accompanied by a short period of tape recorded auditory stimuli. In a "learning mode," the same sequence of events is used, but the presentation area and its accompanying tape recording are completely omitted. Typically, students work through a loop in the "familiarization" mode two or three times until they have worked their error count down to a satisfactory level, after which they review and check their learning by repeating the loop one or more times in the "learning" mode (which actually functions more as a "testing" mode than a "learning" mode). The advantages of this system seem to be : (1) during the familiarization mode, frames can be made to be well prompted, and students can study reasons for their errors on the basis of material exposed in the "presentation" area, while during the learning mode, the identical material can be used as an unprompted frame (at the same time, the learner still has recourse to reduced prompts if he still needs them); (2) considerable economy in programming can be effected, since the same material is used repeatedly in different modes, and step sizes can be somewhat larger than in conventional linear programs; (3) students enjoy the challenge of reducing their errors on successive runs through a loop, and the attainment of a low error count in a loop is in itself rewarding for well motivated students.

Another controversy concerns whether the responses to be required of students in programs should be "constructed responses" (responses recalled from past experience or newly composed to fit the requirements of the problem) or simply "multiple choice responses" (choices among a relatively small number of presented alternatives). The answer depends partly upon the specification of the terminal behavior: if the programmer wants students to be able to recall or compose certain responses, such responses must be required at some point in the program, while if the programmer is chiefly concerned with teaching students to identify or label stimuli, or discriminate between them, the multiple-choice response is probably more efficient and time-saving. Furthermore, the teaching of multiple-choice responses is sometimes a stage which can simplify the teaching of the more demanding constructed response.

Some writers on programmed instruction have confused matters by assuming that the use of constructed responses is more closely associated with "linear" programs, while the use of multiple-choice responses is more closely associated with "branching" programs. If there is any association at all, it is a purely historical accident: during the development of programmed instruction, Skinner and his followers used chiefly constructed responses in linear programs, while Crowder and his followers used chiefly multiple-choice responses in his "intrinsic" or branching programs. One can find linear programs, however, which use multiple-choice responses or a combination of the two types; likewise, it is perfectly possible to require constructed responses in a branching program. (Whether the student branches, for example, may be made contingent upon whether he is able to construct the desired response in a particular frame.)

Rather clear experimental results have been obtained concerning the question of whether it is better to prompt a student's response before he makes it or to wait until he makes it before confirming it. Surprisingly, the prompting procedure seems to make for better learning and retention in most of the experimental studies done. For example, if one is teaching a foreign language vocabulary by the paired-associate method, the prompting method consists of continuing to present both member of pairs like chaise--chair, feuille--leaf, livre--book, etc., but asking the subject to repeat the response terms (chair, leaf, book, etc.). The confirmation method consists of presenting just the stimulus member (chaise, feuille, livre, etc.) and giving the response term only after the subject has made a guess as to the response. If the experimental results are to be taken at face value, current programming techniques (which use primarily the confirmation procedure) are not as efficient as they might be. But it would be ill-advised to make an immediate change to a method relying exclusively on prompting, because the superiority of prompting may be limited to exclusively verbal associations; there are indications, too, that prompting is valuable chiefly in early stages of learning.

Research comparing programmed learning with conventional instruction is regarded as extremely difficult to perform because of the difficulty of holding constant the many variables which might otherwise affect the results. Time available, the quality of the program or of the conventional instruction, the presentational devices used, the Hawthorne or novelty effect, and the relevance of the criterion test are the major variables that have to be controlled. Most experimental studies have favored programmed instruction, even so, but different forms of programmed instruction take widely varying amounts of time. As yet, no definitive statement can be made as to whether programmed instruction will in the long run be more effective and efficient than instruction lacking one or more of the characteristics of programmed instruction. Regardless of the answer, it is possible that considerations of cost, availability of programs and programmers, availability of teachers, and the like will determine the extent to which programmed instruction will win acceptance in education.

II. Programmed Instruction in Foreign Language Teaching

Overview

This second part of the present paper is intended to discuss the special problems that may arise in connection with the application of programmed instruction in foreign language teaching. Among the questions that will be discussed are these: To what extent can FL teaching be done by programmed instruction? Can a foreign language be taught by programmed instruction alone? To what extent is programmed instruction in a FL economically feasible? What special problems are there in preparing programs for FL instruction? What are the pitfalls of programmed instruction?

Specifying terminal behavior

The answer to some of these questions depends first of all upon the specification of the goals of instruction, that is, the terminal behavior that one desires students to achieve. Specifying educational objectives is nothing that is completely unfamiliar to any teacher, but the need for such a specification is accentuated by the requirements of preparing programmed instruction.

The description of objectives, of course, depends partly on one's "level of aspiration." The level and kind of competence desired with a foreign language will have a strong influence upon the statement of objectives.

Whatever the case, detailed specifications of behaviors, skills, and knowledges desired in the "graduate" of a program are called for. Unfortunately, the drawing up of a truly thoroughgoing set of specifications is a large task. Ideally, an adequate linguistic description of the language being studied should be available; from this description one would select the particular items judged to be essential for achieving the level of language competence which is sought. One would list the phonological, grammatical, and lexical items which the student is expected to master. But there is more to the task than this. It is also necessary to specify the language behaviors desired in the student, that is, to state what mastery means in terms of behavior. "Mastery" of a phonological item might mean anything from "a technical knowledge of the phonetic classification of a phoneme" to "habitual and consistent use of the phoneme, with pronunciation like that of a native speaker, in free conversation as well as in formal speech"; one must decide what kind of mastery one seeks. Some items might be listed only for recognition rather than active use (e.g., the forms of the past definite in French). Ideally, one should plan the order in which the various ranges of meanings of lexical items should be introduced. Cultural meanings must be given careful attention, including the use of forms such as French _tu_ and _vous_, various forms of greetings, expressions of time and tense, and many other items conditioned by the social situation. One must not forget, too, statements about the rate of speaking and understanding which the student is to attain.

The importance of preparing these specifications cannot be overemphasized, yet it can hardly be appreciated by a language teacher unless he actually tries his hand at program writing. He will find that the task of laying out and sequencing the steps in the instruction demands a clear and definite set of specifications. Even if a program is based on an existing textbook or language course, it will be necessary to dissect, as it were, the intentions of the author in organizing his material, and often to clarify or regularize this organization. Skillful and successful programming depends upon the programmer's ability to keep in mind the kinds of responses that are desired in the student and the precise kinds of stimuli which are to be used to elicit these responses.

Fernand Marty, in his pamphlet _Programming a Basic Foreign Language Course_ (1962) has provided an outline of the terminal behavior he desires for his program in French. According to him, "what should be the terminal behavior at the end of a basic course cannot be set arbitrarily; it has to be defined by experimentation." He classifies the components of terminal behavior under headings such as: "structures which the student must learn to handle without difficulty," "Morphological items that he must learn to use," "optional liaisons that will be taught," etc. He specifies a vocabulary of 1200 words to be taught during the course, and requires that the student acquire an oral fluency of 150 syllables per minute and an audio comprehension of 200 syllables per minute. He insists, probably rightly, that the description of spoken French must be performed quite independently of the description of written French, and that the activities of speaking and reading French be kept sharply separate in the program.

The description of the terminal behavior must be carried down to the minutest detail. What does it mean to say that a student can handle a structure "without difficulty"? Take the use of the definite article with the partitive structure in French: handling this structure without difficulty could mean, for example, that at the rate of 150 syllables per minute the student can immediately shift from the affirmative structure using the definite article (_J'ai du pain_) to the negative structure where the definite article is not used (_Je n'ai pas de pain_). Or it might mean that in any situation where the student translates sentences requiring the partitive, like "I have some bread" and "I haven't any shoes," he will automatically use the definite article in the one case and omit it in the other.

The specification of the terminal behavior for programmed instruction is not in essence different from that which one makes, or should make, for any other form of instruction, but the need is simply more insistent. In the case of foreign language teaching, it entails not only the kind of detailed linguistic analysis of the target language that we have already described, but also contractive analyses of source and target languages in order to identify what items may cause greatest difficulty in learning.

It can also entail a rather special kind of linguistic analysis to search for sources of confusion in the target language. For example, what forms of the French verb are most likely to be confused (as *fût* with *fût*, *seras* with *serais*, etc.)?

Information on the terminal behavior intended by a program is also needed by prospective users. Just what does a program cover? What structures and vocabulary items are taught? The following statement of terminal behavior printed in the introduction to the program *Basic German Reading* published by TMI-Grolier is hardly adequate:

"The TMI-Grolier *Basic German* self-tutoring course teacher: the sound of the language; conjugation in present, past and future tenses of German verbs; the syntax of the German sentence; recognition of simple patterns of article and noun declension in the singular; use of modal auxiliaries; the imperative mode; use of demonstrative adjectives and possessive adjectives; counting; and 150 useful German sentences." One is not even told the size or the source of the vocabulary included in the course, and from this statement one would not be able without further study of the program to decide for what level of more advanced instruction the student would be prepared. (This is the sort of decision one can make for most elementary textbooks by a quick examination of the table of contents and the glossary.)

What can be taught by programmed instruction?

From what little evidence is afforded by the few foreign language programs thus far developed, it would appear that a wide range of language competences can be taught by programmed instruction. Even without the use of auditory stimuli, lexical and grammatical material can be presented, and the student can attain at least an elementary reading knowledge of a language. With the full range of stimulation afforded by a combination of auditory and visual presentation devices, it should be possible to teach nearly every type of foreign language competence by programmed instruction.

At least one attempt has been made to develop a program of "total self-instruction," i.e., programmed instruction which dispenses with an instructor entirely. Fernand Marty (1962) reports having successfully developed such a program in French. After one year's trial of the program at Hollins College, he lists the following drawbacks:

1. Students missed the teacher-student relationship; from this fact, one concludes that if total self-instruction is to become accepted in schools and colleges, students will have to be weaned early from the teacher-student relationship.

2. "Reinforcement by a machine is not sufficient to provide high motivation." Students would have been better off if they had been periodically supplied with "public reinforcement."

3. The machine program failed to produce pronunciation as adequate as could be attained by a teacher supplemented by tape-recorded drills.

4. Too much time was consumed in detecting errors, and there was also a failure to detect errors with sufficient accuracy.

5. "A self-instructional program cannot provide for free expression."

6. Students felt the need of a book or other material to supplement the self-instruction in the language laboratory.

7. Students were dissatisfied with communicating only with a machine.

Actually, it is evident that few of these drawbacks would be irremediable. Some of them have to do with administrative and programming problems. Thus, it might be practical to wean students from teacher-pupil relationships earlier than is now done. One could easily give students more "public reinforcement" (e.g., by posting lists detailing student progress), and one could supply books or other material to supplement the teaching-machine program (because the use of the books would still be self-instructional). The time consumed in detecting errors might be reduced by improved programming techniques.

Only two or possibly three of Marty's points concern kinds of terminal behavior which may be difficult to teach by total self-instruction: (3), concerning pronunciation, and (5) and (7) concerning free expression and communicating with live persons. Marty admits that "it may be true that a very careful sequence of steps can train some students to discriminate with a high degree of accuracy between acceptable and non-acceptable phonological features," but claims that "for the vast majority of our students the process would be far too long and could not be fitted within a balanced program." (1962, p. 17).

The question thus remains: suppose we push self-instruction to the limit: how successfully could we produce terminal behavior which would be comparable to that produced by methods employing live instructors? This is a question that cannot be answered completely on the basis of present evidence. Probably the farthest advance into its exploration is the work of Morton (1960) and Lane (1961) who have experimented with automated teaching of foreign language phonology and grammar using principles of operant conditioning. Their work is not yet complete, and only tentative and somewhat contradictory conclusions can be drawn. In Morton's 1953-1954 experiment at Harvard (Morton, 1960), much success was attained, both in phonological and grammatical training. "Students emerging from the four sets in sound production exhibited an extremely good pronunciation of Spanish sounds and sound groups" (p. 19). "The degree of automaticity reached in the triggering and manipulation of verbal and physical responses to the acoustic signifiers [i.e., grammatical elements] was remarkably high in all students" (p. 22). The conclusions that one may draw from Lan's careful and rigorous experimental work are slightly more conservative: (1) that highly accurate discriminations among foreign language phones and between FL and native language phones can be taught very readily by appropriate techniques of discrimination learning; (2) that this rapid discrimination learning is based upon a history of prior experience with sounds--that the acquisition of the discriminations looks more like a process of discrimination transfer than a process of the shaping of completely new discrimination capabilities; (3) that the automated shaping of the production of FL sounds is enhanced when it has been preceded by a period of discrimination training, and that it tends fairly rapidly to arrive at some stable level; (4) unfortunately, the final level of production achieved is not always satisfactory. Nevertheless, it is possible to suggest a number of improvements upon Lane's techniques;

for example, information about articulatory aspects of producing foreign language phones could be inserted into the program, for this is one sort of training that could probably be taught as well by a machine as by a live instructor, (assuming that the machine is capable of both auditory and visual presentation).

Even without building a machine that will automatically evaluate students' pronunciation (an extremely difficult thing to do except in very limited areas of phonology, e.g., pitch), it is quite possible that programming techniques will soon be found that will teach accurate pronunciation of FL sounds in nearly all students. Morton's programming techniques seem generally adequate for the teaching of grammatical habits, and certainly knowledge of lexical items is a simple matter to develop by automated self-instructional devices. It is even possible to teach a dialouge by letting a machine take one part in the dialogue, while the student learns to take the other. If sufficient ingenuity is expended, it will be found that there are few if any kinds of terminal behavior in foreign language teaching that cannot be programmed for teaching by automated, instructorless techniques. What we can expect of automated teaching is that it can develop the basic linguistic competencies that can make accurate comprehension and fluent, imaginative expression possible when the student is confronted with a live speaker of the foreign language he is studying.

There is, however, one caution that must be observed. The possibility exists, though it is small, that even terminal behavior that is well taught may become conditioned to the particular locale or circumstances of the teaching and hence may not be as strong or readily available to the student in another locale or set of circumstances. The phenomenon is similar to that which occurs when we find that we forget names of streets and public buildings except when we return to the city where we learned them. Foreign language behavior could become conditioned to a particular teaching machine. To avoid this, it is advisable to require the student to practice some of his learning away from the teaching machine or other presentation device being used. As yet, there is no experimental evidence concerning the seriousness of this problem; it may not be any more of a problem in programmed instruction than it is in conventional instruction. Or, perhaps it would be a problem only in the case where an instructor or native speaker is never available to the student. The matter of how far a person would be able to go without any live instructor or competent speaker of the language is an interesting theoretical question; perhaps it is of increasing practical importance as the need grows for teaching "neglected" languages like Arabic or Hindi or for teaching languages in the grade school in times of teacher shortage.

In practice, however, we may expect that most use of programmed instruction occurs in a context where a teacher is available at least a part of the time. Programmed instruction is used in such a way as to relieve the teacher of some of the burden of presenting elementary language instruction. But it remains for the teacher to assist in student learning wherever the teacher can make a unique contribution. After his experience with "total self-instruction," Marty (1962) turned to a system of what he calls "partial self-instruction and the rest of the time with a teacher, either individually, in small groups, or (occasionally) as a complete class. The individual and group meetings with the instructor are used for imparting general information practice in free expression (carefully controlled within the limits of language items already learned), and the training and remediation of pronunciation. Marty reports no drawbacks in this system comparable to those he experienced with a system of total self-instruction.

The decision as to whether total or partial self-instruction is to be practiced may make a difference in the formulation or selection of elements to be included in the programmed instruction. For example, if the instructor is to be available for pronunciation training, much less emphasis on such training is needed in the self-instructional program. It would, however, be necessary to work out an appropriate balance between what is included in the program and what is planned for the teacher to do. From present evidence, it would seem that discrimination training in phonology can be done more effectively in self-instruction with a special program of recorded auditory stimuli than with the teacher. Training in phonological production can also be done partly by self-instruction, but it must be supplemented by extensive work with the teacher. Similar balances between teacher and program responsibilities would have to be worked out in other phases of language teaching. If we take programming in a broad sense, this is no more than programming the entire course of instruction.

Current programmed materials in foreign language instruction: some comments

A fairly good idea of the characteristics of current programmed materials in foreign languages can be gained by inspection of sample pages of these programs printed in Programs '62 and in Current Issues in Language Teaching: Reports of the Working Committees of the Northeast Conference, 1962. Even better is to examine the programs themselves. Facilities for the training of foreign language teachers and supervisors should include an up-to-date library of such programs as are available in either commercial or experimental form. It should also include specimens of at least those presentation devices that have gained widest circulation and acceptance, and students in the training program should familiarize themselves with the operation of these devices.

The aims of currently available programs vary widely. Some of them are designed only to help the student achieve a knowledge of a new alphabet (e.g., Cyrillic, Hebrew). Others are built ostensibly to teach a basic reading knowledge of a language. Several are concerned only with the phonetics or phonology of a language, and in this connection it is rather dismaying to note that some programs attempt to teach phonology with no use of auditory presentation. For example, a program called Intrinsic Spanish (Sounds and Pronunciation: A Mathetical Course)[2] makes the rather foolhardy attempt to teach Spanish sounds to anybody "with the ability to read and write English at the 9th grade level or above" solely by visual means (mainly, written text). The authors admit that the program produces only "approximations" and that, for example, only 50% of a typical class will acquire a proper Spanish r; nevertheless, in view of the availability and inexpensiveness of sound reproduction facilities it is indeed strange that these are not used in this program. Only three or four programs seem to have the full audio-lingual and reading-writing aims in view; the longest of these, of course, is Sapon's 6602-frame course in Spanish, which is said to require 50 to 85 hours for completion. Only a careful analysis of Sapon's specifications of terminal behavior would enable one to judge for what quantity of conventional instruction this might substitute. None of the programs concern themselves with intermediate or advanced instruction.

All the available programs in foreign language use an essentially linear programming technique; that is to say, there is no branching. Most of the frames require constructed responses, although multiple-choice responses are not entirely avoided. It is difficult to evaluate the size of steps; even though error rate is reportedly small, the steps may actually be too small in some cases. We can only assure ourselves that step size is probably not too large.[3] It is also difficult to evaluate the sequencing of the materials either in the gross or in detail. Contemporary ideas concerning the sequencing of skills seem to have been followed; that is, phonology is taught before lexicon and structure, and lexicon is held to a minimum while basic structures are taught. There is some attempt to fit "pattern practice" within the framework of programmed instruction. In general, the available programs give the impression of being adaptations, to programmed instruction, of materials already developed for textbooks or language laboratories. Of the programs known to the writer, only those developed by Morton and his associates at the University of Michigan seem to strike out in new directions to take advantage of principles of behavior control. The primary characteristic of Morton's work, as described in his Language Laboratory as a Teaching Machine (1960) is its separate consideration of disparate language skills, e.g., in phonology, the thorough training of discrimination skills before productive skills are attempted, or in grammar, the thorough training in "grammatical signals" before they are given lexical content.

Aside from data on error rates and times to complete programs, research data are not available for currently available foreign language programs on such matters as: performance of students on standardized tests of language proficiency; judgments or ratings of student performance by native speakers; retention after varying periods of time; success in attempting subsequent phases of language instruction; differential rates of progress for learners of different ages and different degrees of language aptitude; etc. Such data will be awaited with interest.

Some potential pitfalls in programmed instruction in foreign languages

1. Overzealous claims. Programmed instruction has been heralded as the "wave of the future" in education. Its proponents tend to argue its merits first of all on theoretical grounds. They praise it because it conforms to a superior analysis of behavior and of the means by which that behavior may be modified or "controlled."[4] We will not truly be able to decide the merits of programmed instruction until we have the results of wide-scale field trials. Such field trials have become possible only recently with the development of a number of programs that appear to pass preliminary criteria of acceptability. In the meantime, one hears claims of seemingly miraculous successes with programmed instruction. In their zeal, proponents of programmed instruction have sometimes been guilty of a strange inconsistency. Out of one side of their mouths they warn us that research studies comparing programmed instruction with conventional instruction are extremely difficult to perform with adequate experimental controls, and that even with adequate controls the results can easily be inconclusive. Out of the other side of their mouths they extol the successes of programmed instruction by citing figures intended to show that pupils are much more successful with programmed instruction than with "conventional instruction." In the foreign language field, there seem to be no published reports of this kind, although there undoubtedly will be in the near future.

These reports need to be subjected to the closest possible scrutiny, raising such questions as: How did learning times for the same content or subject matter compare? Were the same content and objectives used in the two procedures? How good was the conventional instruction with which programmed learning was compared? Did experimental and control groups have equal opportunity to learn? Even if efficiency in learning was superior for programmed instruction, was retention also superior? Were student attitudes toward programmed instruction more favorable than toward conventional instruction? Etc.

2. Inefficient programs. In the absence of hard data, it is difficult to support the charge that many present programs are inefficient, but inspection of these programs suggests that they are. Many very elementary points are belabored ad nauseam, or the instructions as to the mechanics of proceeding through a program get unnecessarily tedious. (How many times does one have to be told that one is to select the French word, not the English one, or that one is to repeat after the voice on the tape, etc.?) This seems to be due in part to the principle of the minimal step which has circulated among programmers. In order to make a program efficient, steps must be of optimal size; perhaps they must even be of different sizes for students of different language aptitude. Programmed instruction will not succeed, in foreign language instruction or elsewhere, if it tends to waste the time of students. Nor will it be fully accepted if the format of programs is such that an unnecessary amount of paper and equipment is needed. As said elsewhere, it is believed that programmers in foreign languages should start with the assumption that students can deal with a language program in a reasonably intelligent way, and that points of difficulty should be allowed to emerge from informal tryouts. Points of difficulty in foreign language instruction are more likely to arise from inadequate explanation or inadequate preparatory practice for the introduction of a new learning than from inadequate breaking down of a particular learning into small units. Actually, there are advantages in presenting relatively large units at one time (e.g., several sentences of a dialogue, or a series of contrasting linguistic structures) for the student is enabled more readily to perceive the structure of such larger units and to practice them as wholes.

3. Overefficiency in foreign language programs. It would be a strange paradox, but nevertheless a conceivable eventuality, if programmed instruction in foreign languages turned out to be "too good." If it regularly produced students with perfect native accents, startling fluency in speaking, high proficiency in reading and writing, and decided empathy for a foreign culture, one can realize the educational pandemonium that might result. The educational system might not be able to absorb such students, or they might be to some extent less acceptable in a foreign country than if they exhibited a suitably non-native accent. One solution for this unlikely eventuality would be to modify one's specification of the terminal behavior (e.g., to acquire a cultivated but not native accent); another would be to revise the foreign language curriculum to absorb students with high proficiency in a language.

4. The cost of programmed instruction. All the evidence available at present forces one to believe that the cost of programmed instruction will be greater than that of conventional instruction, even if one bases the comparison on the relative costs of getting a student to a certain point by the two methods. That is to say, it will cost more to get a student to a certain

point by programmed instruction than by conventional instruction, in the same way that it costs more to get a shipment to a distant point by jet aircraft than by railway freight. The difference, of course, is the shorter amount of time taken, achieved at the expenditure of greater amounts of educational resources (programmers, etc.). The pitfall for programmed instruction is that the industry may fail to recognize the need for reducing programmed instruction costs to a minimum compatible with sound program development. At the same time, competition in the industry may force some of the smaller enterprises out of business, with the consequent loss, it may be, of the results of some good work and good thinking.

5. The difficulty of educational research in the context of programmed instruction. The difficulty of doing educational research in the context of programmed instruction is admitted. Unless one is studying merely a small number of variables within the context of programming methodology, it is difficult to set up adequate experimental settings or laboratories for the purpose of evaluating the technique. Unless carful longitudinal studies of student progress under programmed instruction are made and widely circulated, it will be next to impossible to provide "labels" for programs that really say what a program can accomplish in terms of the relevant content. The pitfall for the field is that too little money may be available to support such ventures.

6. Overstandardization. Purchasers of programs and of presentation devices are being told to "wait and see"--either not to use any programmed instruction at all, or to use only materials and devices that show high likelihood of becoming standardized and widely accepted. This advice has the function of protecting purchasers against materials and devices that will rapidly become obsolete, but if accepted too widely may have the unfortunate effect of freezing development at some mediocre level. The widespread standardization now taking place, for example, in the use of certain kinds of programmed texts and machines for presentation of only visual material may retard the development of properly standardized audio-visual programs and presentation devices. The concentration on strict linear programs, with standard frame size, may be another evidence of overstandardization.

Cost and feasibility problems

Among the factors that would have to be considered in judging the cost of programmed instruction in a foreign language are the following:

1. The basic unit costs of programs as fixed by publishers or distributors. The unit costs of the foreign language programs listed in Programs, '62, where given, range from $10.00 for TMI-Grolier's 1994-frame program in Basic Russian Reading to $229.25 for Sapon's Encyclopedia Brittanica Films 6602-frame program "Spanish A" accompanied by 22 7" tapes. Publishers should, however, be asked for separate prices for the components of their programs (programmed texts, tapes, teachers' manuals, tests, etc.) inasmuch as it may be possible to reduce costs by re-using some components and locally duplicating tapes (if publishers permit).

2. The length of programs in terms of either number of frames or instructional hours, considered also in terms of the amount of content covered. Obviously, a program that takes 5,000 frames and an estimated 45 hours to

attain a certain educational objective is more costly and inefficient than one that achieves the same objective in 3,000 frames and an estimated 25 hours. Furthermore, if the per-pupil cost of programmed instruction materials for the first 45 hours of a course is, say, $10.00 and the per-pupil cost of conventional instruction materials for the remaining 35 hours of an 80-hour course is only $2.00, one would institute programmed instruction only if the efficiency of programmed instruction were very much greater than that of conventional instruction. Very little data are yet available to enable one to judge costs of programmed instruction in foreign languages in these terms. A useful exercise for a FL-supervisor-in-training would be to examine various programs in foreign languages available and analyze probable costs in comparison to conventional instruction, with due regard for the estimated levels of proficiency likely to be attained after any given amount of time. It would be useful for such a person to refer to data on program costs supplied on page xii of Programs, '62, where it is stated: "In general, the cost of programmed instructional materials seems to be considerably higher than that of textbooks in terms of equivalent content covered."

3. The unit cost of presentation devices that may be necessary or desirable. Programmed texts, of course, do not require presentation devices other than themselves. The printed components of many other programs are ordinarily prepared in such a way ("down-the-page") that effective use requires a simple "teaching machine" for successive presentation of frames and frame areas, including spaces for the student to write his answer. In order for the program to be reusable, it must be possible for the student to write his answer somewhere else than on the program itself, for example, on a separate "answer tape." Among the machines available for presenting "down-the-page" programs printed on unbound sheets are: The Koncept-o-Graph machine ($32.00) with a separate answer tape, and the Min-Max machine ($20.00), which does not provide a separate answer tape. These machines, of course, could be used with a large variety of programs--not only for foreign languages but for many other courses. It is not considered necessary here to discuss costs of tape recorders and other components of language laboratory systems that may be used for presenting audio-visual programs.

Some experimental programmed materials in foreign languages may require the use of rather special audio-visual presentation devices. Little information can be given concerning the probable cost of these devices. However, the following special audio-visual devices are along those listed, pictured, and described in the recent publication Teaching Machines; Industry Survey and Buyers' Guide (1962):

Dorsett Electronics Model 834 (approximately $550)
Eastman Kodak Mentor Model I ($200 for basic unit; "synchronized sound planned as a further accessory")
Graflex Audio-Graphic ($750)
Hamilton Research Associates Auditutor ("$200 to $500")
Kalart Soundstrip (price unknown)
LaBelle Industries Teleguide (price unknown)
Lectron Corporation of America Mark I ($445)
Visual Programming, Inc., Model Phi Sound/Sight Programmed Instruction Presented (under $400).

Most of these devices are of very recent introduction; prices may decrease if sales prove to be of sufficient volume.

One factor that may have to be considered in the choice of special audio-visual devices would be the cost of program production (as contrasted with program creation). The production and copying of multiple-channel tape recordings (in which one or more channels may be used for control signals) and of film-strips with special control spots may be difficult and costly unless inexpensive special devices are provided to facilitate this work. This is a problem, of course, only if foreign language teachers or supervisors intend to prepere program material themselves.

Training activities in programmed instruction

It is envisaged that the prospective FL teacher or supervisor in a public or private school, or in a college or university, will have the following responsibilities with regard to programmed instruction:

1. He will be responsible for deciding upon the appropriateness of programmed instruction in foreign language courses and for working out means for fitting it into them for maximum effect.

2. He will be responsible for selecting programs from among those available, and locating areas of instruction for which programs should be specially prepared or adapted if not already available.

3. He will be responsible for selecting auto-instructional devices where necessary to implement programmed instrustion, and for establishing ways of keeping this equipment properly housed, maintained, and utilized. This may involve consultation with teaching personnel in non-FL courses if equipment is to be shared.

4. He will be responsible for developing new programs, when necessary, either by his own creative efforts or through the efforts of program writers whom he will select, train, and supervise.

5. He will be responsible for conducting research on the effectiveness of programmed instruction. This may involve making controlled observations of students undergoing programmed instruction, administering tests and compiling the test results, designing experiments on program or other variables, and reporting the findings.

The following activities should therefore be planned as a part of the training of FL teachers and supervisors:

1. The trainee should be required or encouraged to do wide reading in the field of programmed instruction, using the present document as a guide. An up-to-date library of books and periodicals should be made accessible for this purpose.

2. In particular, the trainee should be asked to become acquainted with research on programmed instruction, particularly in the foreign language field. (At this writing, research evidence is meager, but at the end of the year 1962-63 a number of new research reports should be available. For further background, the student should be encouraged to read the present writer's chapter Research in Teaching Foreign Languages which is shortly to appear in the Handbook of Research on Teaching, edited by N. L. Gage and

published by Rand McNally Co.). It is suggested that trainees be asked to write term papers surveying recent research results as reported in the periodicals AID and Programmed Instruction, as well as in psychological and educational journals. There should be a seminar for the discussion of research developments, assisted by an instructor competent in research design.

3. Trainees should work through a number of programs themselves, including:

(a) Holland and Skinner's Analysis of Behavior.

(b) A program on programming, such as the one by Markle, Eigen, and Komoski and published by the Center for Programmed Instruction.

(c) A program in elementary statistics (for background on statistics in research design).

(d) A program in a language with which they are not familiar (providing a program is available to teach the full range of language objectives, at least comparable, say, to Sapon's Encyclopedia Britannica Films program in Spanish).

4. Trainees should examine available programs in languages with which they are familiar and form an impression of (or make a written analysis of) the scope of these programs, the terminal behavior sought, the programming techniques employed, and the general quality and utility of the programs in school settings.

5. Trainees should be given the opportunity to familiarize themselves with various types of presentation devices which are now available, or may become available for use with programmed instruction. Problems of operation, maintenance, physical placement, and scheduling should be considered.

6. Trainees should be required to practice creating short, special-purpose programs that would be useful in foreign language instruction. Examples of such programs might be:

A short program to teach a particular problem in syntax or morphology.
A program to introduce vocabulary in a special field.
A program to teach general phonetics.
A program for teaching a foreign language writing system (e.g., Arabic, Persian, Hindi).

These programs should be exchanged among trainees or tried out on students, after which trainees would revise their programs.

7. It is assumed that trainees will receive instruction in problems of measurement, experimental design, elementary statistics, and the like. Programmed instruction in foreign languages would be an excellent field for the kind of experimentation that is desirable for Ph.D. dissertations. Programmed instruction (particularly when auto-instructional teaching devices are used) is an excellent medium for doing research on instructional variables, since it affords good control over variables that are hard to control in the classroom. The problem of maximizing efficiency in teaching by programmed instruction is a challenging one. The question of the relevance of language aptitude, motivation, and other variables to instruction awaits research answers. Many other questions are suggested elsewhere in this document, or in reviews of research in the teaching of FLs.

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FOOTNOTES

[1] At least two studies, however, have found that students allowed to branch learned just as well as a group forced to remain with a linear program, and took a shorter time. See Silberman (1962, p. 5).

[2] TOR Labs, Inc., 505 19th Avenue, Tuscaloosa, Alabama, 1961.

[3] It is of some interest, perhaps, to note that the per-frame times for the linear FL programs listed in Programs '62 vary widely, but they are all under one minute. For example, from data supplied in this source one can estimate that the average per-frame time for Sapon's Spanish A program ranges from 27 to 46 seconds.

[4] The word control as used by behavioral scientists has probably been misunderstood in some quarters. Behavioral scientists do not seek to "control" behavior in the sense of "pulling the strings" like a puppeteer. They do not pretend to be "Big Brothers" arbitrarily dictating the behavior of students. The notion of "control" is better thought of as akin to the notion of "guiding" or "arousing" behavior. If appropriately designed, a learning situation can guide or arouse the formation of new response tendencies--tendencies which the student usually wishes to acquire in any case. Matters can be arranged in such a way that these new responses will come under the control of certain stimuli. The control, then, is to be exercised by stimuli (spoken words, printed problems, etc.) rather than by the teacher or anyone else who sets himself up as an arbitrary dictator.

THE TEACHING OF LITERATURE

Jacqueline E. de LaHarpe

Before entering into the subject of this paper, I would like to stress the fact that I am here dealing with literature, and literature only. I shall thus leave out any consideration which might apply to language proper, linguistics, etc. This separation of literature from the study of foreign languages itself is, of course, purely theoretical, since language and literature are necessarily, and should be intimately interwoven. Any study of literature has as its first prerequisite a certain amount of proficiency in vocabulary, grammar and syntax. For this very reason, in comparison to what obtains in college, any teaching of literature in high school has to be done on a very elementary level. This differentiation of levels will apply throughout to the considerations which follow, even where, for the sake of brevity, it is not always brought out explicitly.

* * * *

The broad problem that faces us here is: what is the program which will best prepare, in the field of foreign literatures, teachers, trainers, supervisors and coordinators? Obviously, contents of courses and methods of teaching are interdependent: the goals to be reached determine largely the means to reach them with success, yet at the same time with the greatest economy. However, before entering into the detail of goals and means, it might be well to underline once more the paramount value of literatures as viewed from a broadly social point of view; a foreign literature does open to us the psychology of people whom we are only too prone to label as foreign, i.e., not related to us. Thereby, it not only widens our intellectual and emotional horizons, but also fosters the possibility of better and deeper understanding and communication between nations as well as between individuals. Such a result grows steadily in importance, given the world-wide trend of our present-day civilization. The question then arises: how can the originality of a foreign literature best be brought home to the student and future teacher?

Any course in literature can avail itself of three possible avenues of approach. There is first the historical approach. It is concerned with the literary creation in time and space. In other words, it deals first with the broad characteristics of the times in general, next with the particulars of the author's biography, and finally with the genesis of given works, their contemporary impact, and their further destiny. The second avenue is the cultural approach. It concerns itself more particularly with the so-called subject-matter, or contents of the literary work. Its focus is topical: themes, feelings, ideas, theories. The third approach is the properly speaking literary one. It encompasses considerations of an aesthetic nature which apply both to the structure and to the verbal aspect of the texts. It goes without saying that these three approaches are highly interdependent and, therefore, should not be rigidly separated, although in practice a certain amount of separation is needed for reasons of expediency. Because the third--aesthetic--approach deals with elements of a less obvious nature and which, being more subtle, are more difficult to handle, it is apt to be sacrificed to the other two--historical and cultural--. Regrettably so, too, for in the process literature as an art gets lost. Yet, if getting acquainted with a foreign literature can and should provide the student with the satisfactions of intellectual discovery and adventure, it should also furnish him enjoyment--enjoyment of an aesthetic nature. The labored enumeration of authors and titles, together with exposition of thought content, which so often parade as a course in literature, are but preparatory steps toward an aesthetic appreciation. Truly, such an appreciation consists in great part in a sort of "feel" for the literary work. (My commitment to deal with literature only, and not with language, forces me here to leave out any considerations on the capital value of words as such; yet, who is not aware of the wonderful insights bestowed upon us by the bare sounds and forms of words in a language which, newly acquired, still retains for us the flavor of its freshness?) But to return to literature proper: How can such a "feel" best be developed? There is one way only: by placing the work of art at the center of attention, by making it in point of departure and very beginning of any further study, comments, and elucidations.

At the elementary level, such works have to be presented to the student as show affinities--mutatis mutandis!--with his own time, placê, and preoccupations. Obviously, too, such works will have to be culled preferably from among modern writings of a more or less classical, i.e., generally valid form. (See Appendix, Example 1). After which the student can be led gradually (see Appendix, Example 2) to a more detached objective study of the foreign literature as shown in its historic development. He will thus acquire a more comprehensive view of national characteristics and their evolution through the ages. To give this panoramic view is, of course, the task of the so-called Survey courses. Such courses are of considerable value, provided they do not fall into the sin of becoming a mere catalogue of names, titles, and facts for the memory-gifted student to parrot at will. To be really Surveys, such courses should best take into account only broad movements and modes in literary evolution, striking so-to-speak only the high summits in the persons of the truly main authors, viewing the Middle Ages, the Renaissance, and the next modern centuries only as pathways leading to yesterday's nineteenth century and more particularly to today's twentieth century literary output. This perusal through the centuries can be done so as to become progressively more detailed in character; less attention should be paid to the earlier stages, but a more and more close-range viewing used as one gets closer to the contemporary scene. Graphically the whole process could be represented by a triangle with its apex corresponding to the medieval period, its base to the twentieth century. If such an image is kept in mind, the Survey course, without ignoring yet at the same time without over-emphasizing the origins of a literature, will gain considerably in meaningfulness. The focussing on trends as the most important element keeps it alive and pregnant in meaning for the student. The latter finds himself gradually enabled to place individual works in their proper perspective, such a perspective having been previously related to certain individual works, and all trends having been presented to the student as exemplified and so-to-speak incarnated into specific works.

Again, the chronological Survey course might be supplemented and enriched by a further course in literature, built no longer on trends but on themes, concepts, or clusters of ideas--not topics!--, such themes being chosen so as to allow a correlation of literary activity with more specifically cultural aspects. (See Appendix, Example 3). While such a course could conceivably be combined--at least to a certain degree--with the Survey course itself, nevertheless it would better follow it, the two courses being thought of as a sequence and constituting a single unit.

The point, however, that I would like to stress here--and it cannot be stressed too much--is that direct, immediate contact with the literary work, with accent on its aesthetic values, is and should remain the chief, the pivotal element of any study of literature. All talk on or about a work should start from the work itself. For it is in the text, and through the text, that the originality of a foreign literature is actually brought home to the student. This is the reason why the study of texts in the vernacular should be at the center of any course of literature. The French approach to literature offers here the remarkable tool known as Explication de textes. I cannot enter into the details of this noteworthy method. In this country, it is unfortunately often confused with its preparatory stage as used in France at the more elementary school levels, the Lecture expliquée. The difference lies not only in the number of aspects of the texts which are taken up for consideration, but also in the modus operandi: at the risk of oversimplification, one might say that the Lecture expliquée on the one hand leaves out most historical elements and on the other hand proceeds in a linear way by keeping as a rule close to the order of the text taken sentence by sentence. The Explication de textes, however, is the application to a literary object of the Cartesian method of dissection and analysis followed by re-composition and synthesis. (See Appendix, Example 4). It allows aesthetic evaluation to be applied not only to such matters as words and sentences, but to the structure of the work as a whole. (Herein lies the reason why poems lend themselves particularly well to an Explication.)

Even from these too sketchy indications it can be seen that the French method of Explication should be a sine qua non in the program of training teachers in a foreign literature: it allows for a variety of levels in difficulty, as needed, while at the same time insuring the free circulation of the very life-blood of any literary investigation: aesthetic evaluation. There is no better corrective to the all too common bent in American education towards purely quantitative values. From the very first meeting, let us say of a high school student with a poem in a foreign language, through the college Survey course to the final research work for the doctoral dissertation, what really counts is the study of texts in depth, i.e., by the detailed examination and evaluation of the manifold aspects of such texts, including their aesthetic merit. In other words, this means stress on qualitative teaching and study. (In passing, let me state how truly startling it is to observe to what extent American students do profit from applying this method of study at close range to the study of their own literature,--not to mention one case known to me where musical literature was involved with marked success!)

To sum up the foregoing observations, one might say: in the study of a foreign literature the individual text in the original is what really matters. It alone lives. Through it alone can literature really come to life for the student. For this reason, teachers are needed who are trained in building up their courses on and around a given number of texts. This presupposes a thorough training in the techniques best adapted to present texts to the students, as well as in the selection of proper texts. What these texts should be, and also their number, is a matter of programming and is dependent for its modalities on the scholastic levels (high school? college? and, respectively, in which year?) as well as on the character of the school itself (rural or urban high school? junior college? state college or university?). Entering into these details would however lead me too far afield. So, without further ado, I come now to the second part of this paper, which will deal with the question of implementing a Ph.D. in foreign literature(s).

* * * *

Let me first state that I shall not here be concerned with the acquiring of the needed knowledge in literature and the best approach to it: this has been just outlined. Again, it must be remembered that we are dealing here with students who, in the future, will be not only teachers of literature, but trainers of such teachers, supervisors, co-ordinators. This is a factor of great importance and I shall take it into consideration, but only insofar as it affects the domain of teachers of literature. The educational aspects of the question I shall leave to those whose field it is and who are better equipped to outline a properly balanced program of courses. They will have to keep in mind that a solid fund of knowledge such as can be acquired through Survey courses and further more specialized courses, supplemented by extensive readings, is a prime necessity for adequate teaching. The duty of the Ph.D. Qualifying examination is precisely to test such a factual knowledge. Notwithstanding, even here one might conceive an alleviation of purely factual testing in favor of questioning along the lines of interpretation and evaluation. But what about the research work required of the Ph.D. candidate?

Generally, what is required of the candidate for a Ph.D. in literature is a rather lengthy report wherein a neatly delimited question is argued out in an orderly and, if at all possible, not too pedantic manner. The contents of the report result themselves from an intensive study and minute examination of what constitutes the object of the student's research work. In most cases this object turns out to be a minor point in literature. And necessarily so. As of today literary criticism is approximating the sciences both in accumulation of data and in complexity. As a result, the main figures and larger questions of the literary field require such knowledge and broad vistas that they can only be handled--often after a life-time of study--by the big masters of the trade; the poor tiro, just about to enter the profession, is reduced to concentrating for his doctoral dissertation on matters which require a distinctly microscopic perusal and lead to results of proportionate value. (And more than one will continue in this vein for quite a while, if not for the rest of his career--witness MLN, PMLA, and other publications thanks to which alone the scholar may hope to be some day promoted to the coveted status of tenure!) Let us recognize that, in the matter of possible subjects of theses we have come very near to the point of saturation. For these various reasons, some people sense the disappearance of the doctoral dissertation as looming on the horizon.

But are there any commendable alternatives to the doctoral dissertation? To my mind, it would be a grave error to abandon the requirement of a Ph.D. thesis. In itself it requires of the candidate a sustained effort of methodical inquiry and exposition of which any former "papers" in courses or seminars have been only adumbrations. Moreover, it represents for the student the final break with the receptive attitude of his former college years; now he is on his own, and passivity must be superseded by initiative and self-reliance. As a training tool, then, the doctoral dissertation is of considerable value. So, let us keep it. The subject matter, however, might well be looked into for possible changes. Here, several avenues open up.

Rather than focussing on a particular author or work, the dissertation might, for instance, be built on the study of certain literary devices either as they appear in several writers of one given period, or as they appear in several writers of one given period, or as they evolve through time. I am thinking here of matters such as style, syntax, vocabulary, imagery, structure, tempo, types and characters, etc. (See Appendix, Example 5). This is already done in a certain measure, but in most cases the study is limited to one author or even one work, thus leading to the microscopic viewing already mentioned. At the risk of what some scholars might be inclined to denounce as superficiality, this perusal through a wider field would be a better means of preparing supervisors and coordinators, whose duties will require breadth of vision, open-mindedness, and catholicity in taste.

Along the same line but exploiting a different vein, the dissertation might be centered on the study of certain themes, a theme being here defined as a given idea or a cultural item in its multiple appearances, ramifications, applications, and consequences. (Such themes as reason, freedom, individualism, tolerance, humor, slavery, etc.) Here again, instead of limiting itself to the theme as it appears in one certain author or one certain work, the study would be broadened out to include a number of authors and works. This, of course, can be done in two main ways, which I shall call respectively vertical and horizontal. The vertical approach consists of following a certain theme in its evolution through time; it is focussed on the interaction of individual manifestation and social environment as shown in variations, alterations, mutations, deviations, and transformations. (See Appendix, Example 6). The horizontal approach is more interested in tracing a theme in one given period but either as it appears in different fields--thus relating literature with other fields of human endeavor--, or as found under various shades and nuances in a number of works and writers. (See Appendix, Example 7). Here the study might even occasionally disregard the barriers of nationality and invade the domain of Comparative Literature itself. I cannot see anything objectionable in such crossing of the lines. If the writing of the doctoral dissertation is particularly useful in developing in the candidate the desired qualities of method, discipline, and rigor of thought as well as ability of expression, the subject-matter might well be used to foster nimbleness of thought, perspicacity, and imagination. The latter qualities are of paramount importance as requisites for any supervisor or coordinator: whatever his knowledge and his methods, in order to be both just and efficient, he should never be restricted to his own perspective; he must be able to look over the fence and view things from the other man's point of view.

[And why wait for such broadening of horizon and limbering up of thinking until such time as the student is ready to start work on his dissertation? The generally accepted sequence of courses in literature: general Survey, more specific century courses, seminars on a still narrower field, can with advantage be broken to include courses and seminars on themes and movements. (See Appendix, Example 8).]

Again, taking into consideration the practical orientation of the Ph.D. degree program under discussion at this meeting, I would suggest that, in some cases, the very form of the dissertation itself be altered. The candidate might be asked, for instance, not to present the results of his research work under the customary form of a lengthy demonstration or argument; instead, he would offer it in the shape of a projected course. Naturally, this would not be a mere outline, but would have to be done in complete from The material would be arranged in proper order according to a set plan; it would be divided and worked out into the proposed number of lessons; samples of quizzes as well as of final examination would be included, and there should be, obviously, attendant bibliographies listing both source and further reference material. (See Appendix, Example 9). Here, too, the point of departure for any disquisition should always be found in specific texts. These the students would be required to have read ahead of the class-lectures. By this last provision, a frequent pitfall could be avoided: excessive theorizing, or again considerations by the teacher which the student judges as of a purely conjectural nature and hence to be accepted passively, for memory-work only. This the student is always inclined to do when he lacks the experience of a direct contact with the texts under consideration; for he finds himself unable to relate the teacher's commentaries and extrapolations either to the writing under question or to writings and writers of other periods, including his own.

I submit that this kind of dissertation would do far more towards the preparation of good teachers as well as trainers, supervisors and coordinators, than the usual type of Ph.D. thesis. (The latter could well be reserved for those who prepare for a career of research and scholarship above all.) In addition, it might be surmised that, in most cases, the candidates would find greater satisfaction in this kind of practical, closer-to-home orientated exercise in research and writing.

* * * *

Summing up, it appears that on both problems which have been--even if only in a very summary way--entered into in this paper, whether it be the courses in literature or the requirement of a doctoral dissertation, the great question is: do we aim at forming above all research-men and specialists, at the risk of an exaggeration which under the guise of thoroughness and so-called true scholarship leads only too frequently in the classroom to pedantry, leaving the students with stones instead of life-giving bread? or should we aim at fostering the blossoming of a lively concern with the term, in such candidates that prepare for the career not only of teachers but trainers, supervisors, and coordinators? As far as I can see, to ask the question is by the same token to answer it.

APPENDIX

Note:

The examples listed below are given with the intent to complement as well as illustrate the foregoing remarks. They should also counterbalance the somewhat abstract character of the text. They are not meant to be normative. Also, they have all been culled from French literature, for the simple reason that this is my own field.

EXAMPLE 1

A. Social question. The problem of the "underdog": A. France, *Crainquebille*.

B. Moral problems of a broader import: V. Hugo, *Les Pauvres Gens*; A. Camus, *La Peste*.

C. Descriptions of moods either in Nature or in Man: poems of Lamartine (*Le Lac*), Musset (*Chanson de Fortunio*; *Adieu, Suzon*;), V. Hugo (*Saison des Semailles*), Baudelaire (*Invitation au Voyage*), Paul Valéry (*Brise marine*), Aragon (*Les Lilas et les Roses*), etc.

EXAMPLE 2

Molière's lighter plays and La Fontaine's *Fables* are typical of such transitional material.

EXAMPLE 3

I attempted to work out such a course for the summer 1960 NDEA Institute here at Seattle, As a sample, I shall briefly outline what I did with one particular theme, that of *Raison*. I used this theme to throw light on French thought, letters and arts of the 17th and 18th centuries, as well as on certain aspects of French contemporary social life in which traditional values implicitly still survive. (The texts used were mimeographed and handed out to the students as we progressed).

A. For a point of departure I used two passages from Descartes' *Discours de la Méthode*: the four principles for right thinking and for right living (ethics), with comments on the words *raison* and *raisonnable*.

From there I branched out:

B. Raison = pensée. Importance. Valeur morale. Coeur *versus* Raison. Les deux "esprits."
Texts from Fénelon, Gustave Lanson, Pascal, le chevalier de Méré, Claudel (*Animus et Anima*).

C. Raison = mesure, bon sens.
Texts from Méré, Mme de Maintenon, Voltaire (*Candide*).

D. Ordre. a. = ordonnance. Architecture et jardins. Style périodique. Plan. Clarté.
Texts from Bossuet, Buffon, Rivarol.
b. = convenance. Genres littéraires. Repas et menus. Toilette. Texts from Pascal, La Bruyère, Voltaire, Diderot, Flaubert.
c. = bienséance. La politesse française.

E. Conversation. L'art de la conversation. Les salons. Préceptes. Texts from La Rochefoucauld, Méré, La Bruyère, Pascal.

EXAMPLE 4

The *Lecture expliquée* consists mostly of analysis and covers such aspects of the text as: literal meaning of words and references (historical, geographical, and others); grammar; syntax; versification; occasionally even structure and literary devices.

To these the *Explication de textes* adds elements of a more synthetic character: historical interpretation (the author and his time, leading to a literary perspective); source material of ideas (philosophical perspective); personal critical appreciation (aesthetic perspective).

In other words, while the *Lecture* is mostly restricted to explanation and clarification by means of a running commentary, the *Explication* is a critical approach which uses even extraneous material towards its double aim of interpretation and evaluation. The essential difference lies in the fact that the *Explication* endeavors to tie together elements which have been first considered separately, so as to restore true proportions and relationships; also, to shape otherwise disconnected remarks into one organic whole bringing the entire commentary into focus on one outstanding or essential character of the text.

EXAMPLE 5

L'Impassibilité chez Flaubert, or again *L'Imparfait chez Flaubert* can be mentioned as example of subjects of interest but restricted to one single author. Still more narrow in scope is *The Problem of Structure in four "Contes" of Diderot*.

EXAMPLE 6

E.g.: *The Role of Imagery in Lyrical Poetry of the 19th Century*.--*Simile and Metaphor from Victor Hugo to Guillaume Apollinaire*. *The Portrait of the Hero in the Novel from Victor Hugo to Sartre*.--*The Concept and Handling of Time from Proust to Butor*.

EXAMPLE 7

The problem of *Objectivity* as already done for Flaubert (see above, Example 5) might be given a larger scope by extending it to include various writers and thinkers of the Age of Naturalism and Positivism.--Similarly: *Science and Literature in the 17th and 18th Centuries*.--*Art and Literature in the Romantic Period*.--*The Theory of the Grotesque in Music and Literature* (Hector Berlioz).

EXAMPLE 8

I am thinking of such courses as, for instance, Professor Wade's (Princeton) *The Development of Nationalism in France: From Montaigne to the French Revolution*. Or again Professor Hytier's (Columbia) *The Evolution of Poetic Sentiment, 1850-1950*. See also the outline given by A. Morize in his *Problems and Methods of Literary History*, pp. 256 and foll., of the question of *Luxe* in the 17th and 18th centuries. This could be extended to include other European countries.

EXAMPLE 9

As such a course one can imagine *Nature in the Romantic Age*, which could be restricted to a more specific treatment like *Landscapes and the Romantics*, or again even more so, with accent on the aesthetic aspect of the question: *Landscapes and their Description in the Romantic Age*.--Another course could be built on *Modes of Presentation of the Social Problems: from Zola to Péguy*.

LINGUISTICS IN THE PREPARATION OF LANGUAGE TEACHERS

Charles A. Ferguson

In recent years it has become widely, although by no means universally, accepted that instruction in linguistics should be part of the professional preparation of the language teacher. There has been little agreement, however, on the content of such instruction, and few systematic attempts have been made to determine just what parts of the field of linguistic science are most relevant for fuller understanding of the processes of language learning and hence for the preparation of language teachers. There is a large and rapidly-growing body of linguistic theory, and there is also a wide range of linguistic information available on specific languages and groups of languages. It seems likely that most of this theory and almost all the information is only indirectly the concern of those language teachers who are not interested in becoming professional linguists.

ATTITUDES

One important contribution the linguist can make in the preparation of language teachers is the communication of a set of attitudes toward language which have proved extremely fruitful in linguistics and will probably prove to be of great value for language teachers. This contribution from linguistics is so important that it probably belongs in the training of language teachers at all levels and perhaps even belongs at the state of beginning language study in the secondary schools.

1. One fundamental attitude of the linguist is this: he regards language as human behavior. Language for the linguist is something that people do, not simply an artifact or a body of material to be learned. People speak and write languages, they listen to and read languages. The linguist is always ready to remind us that language, no matter how impersonally and analytically it may be studied as a code or system of signs, is learned human behavior.

A result of this attitude is the notion that language can be studied in the way any human behavior can be studied in order to discover regularities and correlations and to look for principles behind these. The professional linguist is generally a very active observer of linguistic behavior, constantly noting details of pronunciation and grammatical usage in conversation and corresponding points in reading and writing. Many linguists find it useful to observe introspectively, i.e., to study their own linguistic behavior. Some are fascinated observing what children do when they speak, how public speakers use their language, and the behavior of speakers of one language as they learn another.

It is easy to see how this preoccupation with the data of language behavior rather than the content of the messages can make the linguist a nuisance and distort understanding of the fundamental process of communication. It is also easy to see, however, how useful the development of this attitude--within reasonable limits--would be for the language teacher. Most language teachers are very inexpert at observing linguistic behavior either in their own speech or that of others. Since much of language teaching rests on the teacher's ability to identify mistakes and bring about changes in linguistic behavior, any training which would improve this ability would presumably bring corresponding improvement in the teacher's effectiveness. Even elementary training in phonetics and phonemics goes far to sharpen the language teacher's powers of observation.

Another result of this attitude is the notion that the teaching of language is far removed from the teaching of a body of material like algebra or history or literature--or for that matter linguistics itself--and is more like the direct teaching of motor skills. No matter whether the teacher's ultimate aims are to produce students of literature or "area experts" or scientists able to read in their field, a great part of language teaching consists of seeing to it that the students acquire sets of habits of speakers of the language being studied. This is especially obvious at the beginning stages of language instruction and is beginning to be acknowledged there, but it probably holds true also at later stages, in different ways.

2. A second attitude of the linguist toward language which may be useful for the language teacher is his impartial, objective view of languages. It may safely be assumed that all speech communities have beliefs about other people's languages, their own language, and variations in their language. For example, members of the community may regard their own language as the best in the world, on the grounds that it is the most "expressive" or "beautiful" or "logical" or "natural"; neighbors' languages may be regarded as "difficult" or "cold" or "poor" and so on. On the other hand, a community may regard its language as suitable only for home use or as somehow inferior to another language. Within any language some forms will be regarded as "better," "more correct," "conservative," "radical," "polite," "boorish," and so on. It is very important for the linguist to become familiar with the linguistic beliefs and values of the speakers of the language he is working on since in some sense they provide the setting for normal use of the language and will be the key to much of the linguistic behavior of the members of the community. Linguists have found, however, that they can make much greater progress in analyzing a language if they keep intellectually aloof and emotionally uninvolved with these beliefs and values. For one thing, the linguist feels that any language, no matter what value the speakers or their neighbors may place on it, is analyzable and that all variations of a given language can be studied.

The linguist's position is that of many students of human behavior--he may be sympathetic with the beliefs of his informants and may tend to share certain of their attitudes and values, but he deliberately refrains from value judgments in his analytic work. He is descriptive rather than prescriptive.

The language teacher, on the other hand, by the very nature of his occupation must be prescriptive. It is his job to see that the students learn the "right" forms and not the "wrong" ones. It may be difficult at first glance to see how the linguist's attitude of impartial objectivity can be of use to the teacher, but there are several points at which it seems to have great utility.

One point of relevance is the fact that the speakers of a language will often use forms of which they are not aware and which they would deny they have uttered. Also they often claim to use regularly forms which in fact they very rarely utter. Dependence on the speakers' beliefs can lead the teacher far astray in his choice of "rights."

Another point where this attitude is relevant is in the amount of emphasis given to items learned formally by the native speaker as standard as opposed to those learned informally in childhood which are also standard. For example, the native speaker of American English called upon to teach English to speakers of another language may devote more attention to the shall/will distinction which his high school teacher drilled him on than to the makes/is making distinction which he learned as a child and is of much greater importance in the mastery of standard English. This natural tendendy on the part of the native speaker is often passed on by textbooks and classroom habits to other teachers.

In general, the problems of "correctness" and the rating of one expression or language against another come up constantly and inevitably in language instruction. It is certainly better that they be treated within a framework of fact and theory which is broadly based and dependent on observation than that they be treated in a haphazard way reflecting only naive beliefs and guesswork.

3. A third attitude of the linguist which it would be useful to communicate to the language teacher is the notion of the primacy of speech. Educated people from highly literate communities become so much accustomed to the use of written language that it becomes easy to assign to it the primary role in human linguistic behavior. A few minute's reflection, however, is enough to shift this perspective. Men have talked for hundreds of thousands of years, they have written for little more than five thousand. Most languages in the world today are not regularly written. Most people in the world do not know how to read and write. People who do know how to read and write their own language have learned to speak it first and even after they have become literate they continue to carry on a large and important part of their daily communication in speech. Speech is historically and psychologically prior to writing. This means that speech has a kind of primacy the language teacher must recognize. It does not mean that writing is unimportant. On the contrary, writing is recognized as one of man's most important inventions and as the necessary prerequisite to civilization. Language teachers who learn to share this attitude gradually move away from misleading or inaccurate formulations of the "this letter is pronounced" type and, more important, begin to see grammatical processes in terms of speech so that there can be less distortion in explanations and less wasted time in reconciling differences between written and spoken forms.

SUBSTANCE

Little of the substance of linguistic science need be communicated to the potential language teacher beyond the amount of linguistics which would be desirable for every educated citizen to know and a concentrated knowledge of the structure of English and the language he is going to teach, unless his own interest and aptitude send him along the path of linguistic study.

On the other hand, it seems highly desirable that a considerable body of linguistic theory and information be imparted to those who are planning, or are moving over into, careers as language supervisors, trainers of language teachers, experimenters in methods of language teaching, and writers of textbooks.

For these people the traditional courses in linguistics (e.g., introduction, phonetics and phonemic, morphology-syntax, field methods) are useful, but there are several reservations. A number of topics are covered in such courses which are only of very marginal interest or value to this group, much emphasis is placed on techniques of analysis, and relatively little emphasis is put on the presentation of linguistically sound treatments of common languages. Whatever topics in linguistics are to be covered for the specialists in the language teaching field illustrative material should certainly be sought in the first instance from English and the languages commonly taught in American schools (French, German, Hebrew, Italian, Latin, Russian, Spanish). Next they should come from the major world languages which one can hope will be increasingly offered in American educational institutions (Portuguese, Chinese, Japanese, Arabic, Hindi-Urdu, Bengali). There is enough material in the sound systems, grammar, writing systems, and lexicon of these languages to illustrate almost any important point which should be covered in these courses.

There is, of course, no need to present all this material in a formal course in linguistics, and in some programs it might be much more effective to include pieces of it in a variety of different courses or supplementary work. In any case, the linguistic topics which I would want to touch on whether in a formal course or interwoven with other parts of the program are these: sound systems, grammatical systems, vocabulary, norms and variation, interference, sociolinguistic settings, linguistic change, and "languages of the world."

The study of sound systems has become a mature, well worked field. There is an enormous body of data covering many aspects of articulatory and acoustic phonetics, and a wide agreement on the way sound systems function. Differing views in phonetics and in phonemics have become to a large extent either complementary or merely terminological. Accordingly it is possible and desirable to present the main outlines of phonological theory and data. Unfortunately, there is no comprehensive handbook which brings all this material together, and the preparation of such a handbook is an important desideratum in linguistics today.

In addition to presenting the main outlines, some attempt should be made to present the areas of research and current instruments of research which are promising to broaden and deepen our understanding of sound systems, such as the sound spectograph, synthetic speech, and X-ray films. Current approaches to phonological typology (Jakobson, Hockett, Voegelin) deserve discussion.

The topic of sound systems deserves attention both because linguistics has the body of material referred to and because a great deal of this material is directly applicable to classroom teaching. Instruction in this field essentially represents the old tradition of work in phonetics, and brings it up to date.

Grammatical systems cannot be treated in such detail as sound systems because of their great complexity and variety. Also, linguistics instead of a well-ordered mass of information and theory has here a series of alternative approaches. These various approaches all seem to offer techniques of merit, and grammatical analysis, based on several of them is appearing in increasing quantity, but they cannot be regarded as equivalent and the differences among them are not trivial.

It is important to communicate to the language teacher trainers some of the excitement of the new theorizing in grammar, but this can probably best be done by choosing concrete examples from the major languages and demonstrating the results of different approaches. This procedure should lead to regarding the various approaches as alternative tools of the teacher to be employed where they prove useful rather than as mutually exclusive theories of grammar.

Vocabulary as a field of study is greatly neglected by contemporary linguists, but deserves special attention in language teaching. At least the following should be treated: statistical characteristics of a lexicon, types of lexical contrast across languages, and linguistic problems involved in preparing and using monolingual and bilingual dictionaries.

One of the most important topics to be covered is the nature and origin of linguistic norms and the related field of the nature and range of dialect variation within a speech community. The process of standardization has been studied for several European languages (Meillet, Vendryes, more recently Kloss), and there are useful studies of dialect variation in a number of languages. These studies could serve as the basis for discussions which would clarify the nature of "correct" usage, the function of dialect differences in various special settings, and the spread of linguistic changes.

The systematic study of the linguistic aspects of languages in contact is in its infancy, and explicit contrastive linguistic analysis of languages for the purposes of pedagogical application has become common only in the last few years. In spite of this, the area of linguistic study concerned with interference across languages is of such obvious importance to language teaching that a considerable amount of time should be devoted to it.

A survey of the languages of the world, with their genetic classification and some notion of the variety of roles played by different languages in various societies and nations belongs somewhere in the formation of every educated American. In the case of the language specialist this study should be deepened to include a fuller explanation of the principles of linguistic change and discussion of recently advanced typologies of sociolinguistic situations.

APPLICATIONS

It has become fashionable to include courses in "applied linguistics" in teacher training programs, but the content of such courses varies a great deal, generally including a good bit of "pure" linguistics and material from other fields. Apart from the attitudes and topics listed here, I feel that there should be ample discussion of concrete examples of application of linguistics to language teaching, especially instructional materials. My own preference would be to keep the role of linguistics very carefully identified, avoiding such misleading labels as "the linguistic method."

THE TEACHING OF THE CULTURAL CONTEXT OF A FOREIGN LANGUAGE

Ronald Hilton

"Tomorrow and tomorrow and tomorrow creeps on this petty pace from day to day." Clearly he who spoke these lines did not read the New York Times every day. We do not view a tedious drama moving at a petty pace, but rather a great epic which is unfolding before our eyes. Truth may not be stranger than fiction, but it is infinitely more moving. We are both spectators and actors in this drama. Does the Great Playwright write our parts compelling us to play them out without even permitting us the improvisation of the commedia dell'arte? The moving finger writes, and having writ, moves on? Is it a tale told by an idiot, full of sound and fury, signifying nothing? Complex as these questions are, we must assume that the answer to all of them is "No." The paradox of life compels us to struggle unceasingly to ensure that the answer be "No." Everything, including the study of modern languages, must be viewed in the light of this struggle.

We live in a world which we must seek to understand. The focus of our attention must be the present. We look back toward the past, forward toward the future. We can no longer, as some of us were trained to do, live intellectually in the past, eschew the present, and avoid the future as being outside of the realm of scholarly speculation. To put it simply, we must be politically responsible. The word politics is not used here in its narrow popular sense. It involves a realization of what man is as revealed by biology, anthropology, sociology, and philosophy. It studies man functioning in time and in space. The once-discredited term race is making a scientific come-back, but, in order not to revive the issue in its former framework, let us replace Taine's "la race, le milieu, le moment" with "l'homme, le milieu, le moment." If politics has a much broader base than is usually suspected, it is also much higher than one might think, even though most of the population lives in the fertile lands around the base.

In order to conduct the affairs of the world we must communicate knowledge and ideas, and, since the world speaks different languages, the study of them is necessary to permit this communication. This is by far the most important use for the study of languages, and most of the propaganda we are putting out promoting the study of language is implicitly based on this supposition. Yet in reality most of our language teachers swing in the palm trees at the base of the mountain hunting for coconuts. The trees are becoming crowded. What seems to be disappearing from foreign language teaching is homo sapiens erectus. I do not think age is twisting my perspective. Thirty years ago we had, heaven knows, dull language teachers. Yet there were those who stood for something and made language teaching a noble profession. Today, with exceptions, language teachers impress me as being a crowd of operators--they operate machines, they operate curricula, they operate budgets, they operate propaganda, they operate grants--but they don't stand for anything.

Indeed, there is widespread simony in our ranks. We carry on a constant propaganda about America's need for languages in the modern world, but how many language teachers are really interested in the modern world? How many language teachers does one see reading the New York Times, or any of the informative or opinion-making journals? I can judge by the response to our own analyses of Latin American problems. They are read with interest by professors of history, political science, geography, and economics, by lawyers, by doctors, by missionaries, by businessmen, by government officials, by butchers, by bakers, and by candle-stick makers. Yet I am amazed when a teacher of Spanish displays any interest.* It seems evident that the constant prattle about the need to study the foreign languages of the world in which the United States must operate is largely aimed at getting increases in budget and salary. This does not mean, of course, that money is of no concern or that these increases are unnecessary or undeserved. We are told in trite Pan American phrases that there is a historic friendship between the United States and Brazil, and then we are given practically no money to run a Portuguese program while millions are being poured into other fields.** At the same time Professor Henry W. Nordmeyer grossly overstated the case when he said in his 1961 presidential address to the Modern Language Association: "All we need is money."

Language teaching seems to attract women, and we have a higher percentage of them than most other departments except home economics. America is a country where women take a leading part in civic affairs; among our myriad women's organizations we have such internationally-minded groups as the League of Women Voters, and the International League for Peace and Freedom. American women have a devotion to noble public causes, and this is one of the most appealing aspects of life in the country. Yet unfortunately language teaching seldom attracts this kind of women. Some of my best assistants have been women, but women must bear a large share of the blame for making language teaching a brainless activity. The serape and hat-dance mentality which pervades much Spanish teaching is largely of feminine origin. The women retort that men slough off onto them much of the drudgery of language teaching, and that male administrators deliberately hire the kind of women who will be uncomplaining, noncontroversial hacks.***

I was originally a professor of French, but I came to the conclusion that "French," as it is understood in our universities, is of steadily decreasing significance. It was for this reason that I moved over first to Spanish studies, then to Spanish American studies, and finally to Luso-Brazilian studies. I know therefore how acute is the rivalry between the various language groups in our universities, and how difficult it is to arrive at a decision regarding the relative importance of languages. Should we look toward Mother Europe, and stress French because of its historic significance, or German because of the power of Germany in contemporary Europe? Should we take a broader view and study Spanish as a language second only to English in the Western world? Should we upgrade Portuguese as the language of what is destined to be the greatest of the Romance-speaking countries? Should we give Russian the first place as the language of one of the two great contenders for the hegemony of the world? Should we speak of the vast numbers who use Chinese, which, being so different from English, provides the best exercise for those who seek mental training in the study of foreign languages?

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*There are of course some conspicuous exceptions such as Professor Dwight Bolinger and Robert A. Meed, Jr.

**Ironically, because of the lack of sincere interest in Portuguese, some money which is offered to promote the study of Portuguese has actually been turned down.

***They charge, not without reason, that the whole academic system in the United States is a machine which automatically rejects individuals with controversial ideas. Women teachers say they appear timid because they are underpaid and are frightened of losing their job. There have been in Southern California some shameful cases of language teachers who have had trouble because they discussed controversial issues.

These are complex questions, and there are very few language teachers I would trust to give a fair answer.[1] Perhaps public opinion will be the decisive factor, sending hordes of students first to French, then to Spanish, now to Russian. Impartial bodies such as the Office of Education may help by providing an impulse to the neglected languages. However, we have already reached a point where this system is not working. Our universities are turning out Ph.D.s in Chinese, Japanese, and Arabic for whom there are no jobs. In view of our constant talk about the need for trained linguists, this situation is disgraceful.

The choice of a language will decide the relative stress to be given reading, writing, hearing, and speaking. Obviously reading is more important in Latin, hearing in Bantu. In most languages we should keep a reasonable balance. The American mania for change which is allegedly progress but really is just change (fin-tails on cars, for example) has led us from the extreme of the Coleman Report, with its almost total emphasis on reading, to the present mania for oral-aural approach. The oral-aural study of language has just as much a place in a liberal education as a Berlitz course does, and in practical terms it will be just as useful for the same people who take a Berlitz course, and to no one else. Just as our war effort is a strange mixture of patriotism and vested industrial interests whose tentacles reach right into our universities, so the oral-aural study of language is a mixture of education and vested industrial interests. One might retort that the technicians and the audio equipment companies whose welfare is dependent on our language laboratories have simply followed the example of the professors who turn out text-books as hack-work and the publishers who thrive on text-books in a battle of the books which has none of the ideological content this expression historically conveyed. In brief, we must in most languages stress reading, understanding, writing, and speaking in that order, with the principal stress placed on an exact understanding of what the text says. This is the most intelligent thing to do, and indeed the most practical. I have the sharp impression that students who are trained by the new oral-aural methods are less and less able to read intelligently. Our language departments are more and more being staffed by little men with little minds and little machines. If this trend continues, there are many things which should take the place of language study in the liberal arts curriculum.[2]

Our study of foreign literatures has traditionally been reduced to belles-lettres, meaning essentially poetry, drama, and novels. This exclusiveness is a legacy of the European tradition in which this conspicuously useless study had a status value which Thorstein Veblen denounced. In the English-speaking countries I should be satisfied if all but a few specialists knew in the original the great literature of the English language. Certainly the study of this literature should be stressed as an invaluable component of a humanistic education. However, the peculiar literary forms of belles lettres are as much related to the concerns of the modern educated man as are some of our strange theological systems which we are quietly sweeping under the carpet. This is not to deny the greatness of theology or of the grand tradition of literature, yet, when I peruse modern poetry, drama, and novels, I wish we would sweep them under the carpet too. In England, Cambridge don F. R. Leavis represents in a nasty way the dead idea that belles lettres are the center of a liberal education. The object of his venom, C. P. Snow, has a much better understanding of what the modern world is all about and of the need for men with a broad humanistic and scientific culture. The so-called literary artist in the modern world is usually a charlatan. Federico García Lorca, who lived in the Residencia de Estudiantes in Madrid when I was there, was a third-rate author who belonged with his gypsies; he and the uneducated authors who attempted to be the prophets of the Spanish republic were largely responsible for its non-viability and its collapse. While in no way exonerating the machine which seized power in 1939, we must recognize that the predominantly literary character of Spanish intellectual life was in some measure responsible for the failure of the republic. If, however, we insist on talking about literature, we should go beyond the genres which are traditionally studied. There is a vast travel-literature about Spain which tells us more about that country than does Spanish literature. It is encouraging to note that this serious concern for travel literature has developed independently in my distinguished friend, Professor Francis M. Rogers, chairman of the Romance Language Department at Harvard University. If one is concerned with creative forms, the movies tell us more about a country than does its poetry, its plays, and its novels. The movie seems to me the only genuine literary form in the modern world, and the only modern literary form which I personally enjoy.* Our courses on modern Spanish literature should concern themselves primarily with Spanish-speaking movies.

The basic problem, however, is that we have put the cart before the horse. In foreign studies, literature should be a commentary on reality, not reality merely a background for literature. In the elementary stages of language learning, plays and novels provide a facile and entertaining form of study. But on the more advanced level, literature becomes increasingly dangerous. I recently met in Trinidad a young Englishman who had never been to the United States but who had an intimate familiarity with American literature; and what a crazy idea of this country he had! He would have done well to forget the belles lettres and read the New York Times or the Congressional Record every day. The same principle applies in reverse to our Spanish teachers. Even though they may be familiar with the second-rate poets, dramatists, and novelists who proliferate today in the Spanish-speaking world (of whose culture they are far from being the most substantial and significant exponents), Spanish teachers have little grasp of the reality of the countries which produce these fleurs du mal.

While our professors of Spanish devote their research to studies of these authors through whom they see the country as through a smoky glass, our social scientists are looking at the countries directly, using their own eyes and their own minds. Indeed, the same may be said of the natural scientists such as the geologists, and frequently they provide fresher and more intelligent accounts of Latin America than do our professors of Spanish. What would we think of our social scientists and natural scientists if, instead of looking at Latin America directly and using the writings of others as supporting material, they became specialists in the writings of some given author? In brief, our professors of Spanish should learn to look upon literature as a commentary on reality, and the reality comes first.

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*It is significant that in June 1962 the French Academy broke a precedent by electing movie director Rene Clair. In his inaugural address, the new "immortal" said that his election represented formal recognition of new art forms such as the movie, radio and television.

How should we evaluate the contribution of the social sciences to the field of foreign languages? Much more importance must be given to the study of geography than we usually accord it. Even in the case of European languages it must not be neglected. I recall that Michelet's Tableau de la France, which is essentially human and historical geography, was required introductory reading in England when I was a French major. In non-European (e.g., Latin American) studies, the importance of geography is considerably greater. It is unfortunate that in the prestige private universities in the United States geography is rated so low. This is false academic snobbery and a serious disservice to the academic community and to the nation. Some of our great geography text-books, such as Preston James" Latin America, are too heavily burdened with geological details. It is important to know the geology of Latin America, but language majors need essentially the type of human geography which is lucidly provided by Gilbert Butland's new but unfortunately inaccurate Geography of Latin America. Our students should understand the application to Latin America of cognate fields such as botany, soil science, meteorology, zoology, medicine, and even ichthyology and entomology. Presumably the student will have received some grounding in these from his general science courses. In brief, we may agree with Américo Castro that history is more important than geography, but the fact remains that Latin American life has a telluric quality.

What then of history, that massive central column of our humanistic studies? The relationship of language studies and history should be so close that the fields are inseparable. When one examines the work of the great scholars in our field such as Marcel Bataillon, Américo Castro, and Francis Rogers, it is evident that they are essentially historians. Unfortunately in the United States some kind of tick seems to have got under the skin of historians. My work brings me into contact with scholars from a variety of disciplines. Perhaps it is an accident that I see in some historians the most distressing clannish spirit. Historians should feel secure enough in their great domain to cooperate actively and happily with language and area programs. Unfortunately our whole system encourages a dichotomy. Even in the high schools there is a cleavage between language teachers and social studies teachers. When I address high school teachers I should like to have an audience interested basically in Spain and Latin America. Instead I am confronted with one of two groups, either language teachers or social studies teachers.

It is ironical that some of the most intolerant exponents of departmentalism are historians. The plight of geography in the United States is partly due to the unwillingness of historians to lend a helping hand. They say that geography is not a pure discipline, that it is a synthesis of geology, botany, anthropology, and economics. Yet are there any pure disciplines? The answer is "No." Certainly history, which since the days of the "new history" has claimed to embrace a variety of social sciences, humanities, and even natural sciences, is not a pure discipline. There are at best certain intellectual foci, of which history is one and geography another. We now have a "new new history," heavily influenced by the behavioral sciences (whose jargon it borrows), which discusses in a confused way supposed trends in Latin American society. This research would be valid if the "new new historians" knew their facts. I have the sharp impression that they do not, and certainly the students they train do not have the solid factual basis which the older historians gave.

The focal point of life in modern Latin America is politics, and it is impossible to understand contemporary Latin America without following political affairs. This is in reality a complicated and exacting task, and must be carried out with the techniques described in my UNESCO paper. There should therefore be a close working relationship between language departments and departments of politics, political science, or government (all three labels are used in this country). Unfortunately most language teachers do not follow public affairs with sufficient attention, and few political science teachers are linguistically well enough equipped to use the techniques which our Institute at Stanford has developed. Once more we pay the price of departmentalization.

Sociology and anthropology are squabbling twins, and it is sometimes hard to tell them apart. Moreover, they both suffer from schizophrenia. Some sociologists like C. Wright Mills are really creative humanists who despise (See Mills' The Sociological Imagination) the behavioral scientists who tediously and not very intelligently amass statistics and build models in a desperate attempt to be scientific. A complicating fact is that anthropologists, to whom sociologists have tended to leave the Latin American field, are incurable romantics who love to study villages and Indians but are congenitally unable to function on the national and international level. It is incredible, for example, that two books on Colombia by anthropologists fail completely to pay attention not only to national life but even to the civil war which has been ravaging the Colombian villages studied by these scholars.[3] A recent book on Spain, Michael Kenny's A Spanish Tapestry, fails completely to discuss the basic problems of contemporary Spain.[4]

Just as in the United States geography tends to be underrated, so anthropology, inadequately conceived, has been given more authority than it is at present qualified to assume. One offshoot of anthropology has been the modern science of linguistics, which has become so popular in language circles recently. In a general way it may be said that the science of linguistics is extraordinarily important and interesting. It requires a command of a variety of disciplines, from physiology to philosophy. Linguistics is a most important science in its own right, and it provides a valuable basis for the study of exotic languages. However it should be given a low priority for those studying western languages, certainly lower than the disciplines listed above. By its emphasis on description rather than prescription it seems actively to discourage the cultivation of language as a precision instrument for communicating thought. "Leave your language alone" is a declaration of barbarism. How much more civilized was Flaubert's insistence on les affres du style. In my own experience, professors of linguistics do not speak foreign languages conspicuously well.

In the field of Spanish, and indeed of other western languages, the most important work remains to be done in the field of lexicography, such as the studies of the Portuguese vocabulary being conducted at Stanford by my good colleague James L. Taylor. The vocabulary of Spanish and Portuguese is changing constantly in terms of social, political, and technical development, and the alert student of Spanish and Portuguese must follow those developments and the vocabulary changes which reflect them. New words are constantly being added, while others change their meaning. Every tour I make of Latin America brings me in a new harvest. Recently, for example, the word comiteísmo has arisen to designate a political phenomenon in Bolivia, while in Peru the meaning of the word civilismo has changed. The Bogotá weekly La Nueva Prensa of June 22, 1962, came out with large headlines on the front cover: "Bolivar no era cipayo." How many Spanish teachers can translate this short and slashing attack on contemporary Colombian politicians? Do they know that cipayo is comparable to that delightfully nasty word Los lentejos? We hope that they will at least understand what Mexicans mean by malinchísmo. In the technical sphere, it has been interesting to watch the attempts of Spanish and Portuguese to translate the words "jet plane," and it remains to be seen how they will adopt all the new variants of the word jet.

These all-too-numerous Spanish teachers who are content with a static vocabulary and do not follow the changes in things and the parallel changes in words do not really know Spanish. Certainly in Spanish and Portuguese the study of lexicography has been very much neglected, and it is perhaps the only phase of linguistics which makes a significant contribution to the study of western languages within the intent of the NDEA act. In the same content linguistic atlases such as those prepared in Europe are of very little significance.

There are other disciplines which must be included in this survey. Religion may be regarded as one in tis own right, or a branch of philosophy, history, or anthropology. In any case, it is impossible to understand Spain and Latin America without a free and informed discussion of religion in Spain and Latin America. Such discussions are almost taboo in contemporary America, and it is significant that scholars tend to shy away from the books of Paul Blanchard. In Spanish studies there is probably a higher than average percentage of Roman Catholics, and there is a fear of embarrassing them by engaging in honest discussions about religious matters. This is another manifestation of the intellectual cowardice which is becoming increasingly widespread in our universities.

Economics has hitherto made a small contribution to Hispanic studies, and this is rather ironic in view of the fact that Adam Smith's The Wealth of the Nations was largely inspired by the economic decline of Spain. Economists have tended to regard themselves as scientists in the Kantian sense that a subject is a science in so far as it can be reduced to mathematics. This has led economists to think in universal terms and to be hostile to the regional concept. It may be for this reason that economists specializing in the Latin American area, men like Sanford Mosk and Wendell C. Gordon, have been rare. There has, however, recently been a thawing in the attitude of economists toward regional studies, and certainly it is impossible to understand Latin America without economics. There should be a rapprochement between Spanish teachers and economists.

Law and administration present serious problems which are reflected in lexicography. Quite apart from the general consideration that Latin American law is based on Roman or civil law, there are many peculiar phenomena which present almost insoluble problems of translation. For example, the Mexican amparo is not habeas corpus. The "rector" or "reitor" of a university is not a rector or a president, although in the Hispanic American Report we have adopted the latter translation. A Peruvian scolded me for translating "el prefecto de Lima" as "the mayor of Lima." An examination of the departmental administration of Peru reveals that he is right, and that we are reduced to saying "the prefect," although in English that word means almost nothing. We talk about an intendencia in Colombia, and do not even attempt to translate the word. Above all, we should stress that traditionally law has been the prestige faculty in the Spanish and Portuguese speaking world, and that the study if not the practice of law infuses the whole life of that world, and indeed its vocabulary. This is probably a dying phase of Ibero-American life, as the businessman replaces or displaces the lawyer.

No one would deny the importance of medicine in Latin American studies, and presumably all would agree that the serious Latin Americanist should have a mature understanding of this field. Yet the literally-minded may wonder whether the scholar of Latin American languages need bother himself with these technical matters. If he wishes to be a serious scholar, he should. The whole concept of abulia needs scientific examination. Does Jorge Manach know what he is talking about when he engages in a pseudo-scientific discussion of choteo? What do we mean by the word tropical? Medicine, like law, has been an honored profession in the Spanish and Portuguese world. Is that why the vocabulary of Spanish and Portuguese contains a number of words like anquilosis which have cognates in English that are not in common usage? To confine ourselves to linguistic matters, what is the effect of altitude on speech, and is it true that the variants of Spanish in Latin America reflect altitude rather than el supuesto andalucismo of Spanish America, as Pedro Henriquez Ureña calls it? Quite apart from these technical questions, we may say that a Latin Americanist who is insensitive to medical problems and to the whole issue of ecology is not adequately trained and indeed does not have an education worthy of the twentieth century.

In the modern world, every educated man, even modern linguists, must be acutely interested in scientific developments. Quite apart from the fact that science now infuses everything, many so-called humanistic judgments are the product of warped nationalism or ideological attachment. A few whimsical colleagues, such as Donald H. Menzel,* pay sympathetic attention to science, but few attempt to soak their minds in science.

To be a Hispanic Americanist obviously demands a breadth of vision such as is seldom recognized under the petty label "Spanish." What academic structure can prepare scholars worthy of this calling? Clearly not the common concept of "modern languages," which turns out narrow gauge individuals who, if they ever do anything, spend their lives attached to some allegedly significant authors like flukes to a shark. I for one will not accept that role; I have my own truth to tell, and I will not spend my life as the shadow of one or more recognized authors who happen to have written in Spanish or Portuguese. If this attitude is justified in the case of French or Spanish, how much more so is it for scholars of languages which have not produced notable authors? We must not leave to sociologists and others the right to speak with intelligent independence about the societies we study and their languages.

What academic structure will make possible the development of "language" specialists as described in this paper? Clearly the old department structure is not good enough. At the bases of the new system must be the study of language--as exciting, as time-consuming, and as disciplined as ever. We must reject as professional phonies those Latin Americanists who do not have an adequate command of written and spoken Spanish and Portuguese. That the social sciences are turning out such Latin Americanists with apparent success should not affect us.

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*See Donald H. Menzel, Space--The New Frontier, PMLA, May 1962, pp. 10 ff.

At the same time, and for reasons described above, the task of modern languages is synthetic. The program correlated with language teaching should be broad and intelligent. To put it simply, it must be, in fact, whatever the operating academic structure, inter-disciplinary. Any language specialist whose life is governed exclusively by a departmental loyalty is clearly not equal to the demands of our time; he belongs to an earlier generation or to an academic museum.

Each institution must seek its own salvation; each must discover the task which it can perform with special aptitude. Our universities should strive to complement each other rather than to vie with each other. Through the Hispanic American Report and the Institute of Hispanic American and Luso-Brazilian Studies, Stanford University has formulated its peculiar contribution to the field. The UNESCO paper about our program states clearly what our aims are. We await similar statements from other institutions.

Above all, the study of the contemporary world through language and area studies must be carried out, if not in an atmosphere of complete freedom (for such a thing does not exist), at least with all the freedom we have the courage to demand. In every society the power elite tries, usually successfully, to gain control of the institutions where opinions are evolved, conspicuously the universities and more recently the press. Historically the various churches have been most vigorous in attempting to control thought. Today it is the Communist and capitalist systems which most actively suppress what they call "subversion." It is most difficult for a professor on either side of the Iron Curtain to present a fair analysis of developments on the other side of the Curtain. It is a great temptation for a university administrator, whose success is judged in financial terms and who depends on the benevolence of a legislature or of little old ladies with millions of dollars, quietly to discourage anyone who says unpopular things. No responsible professor of medicine will make unfounded claims to have found a cure for cancer, and we should be equally circumspect in our statements. Yet there is possibly no area where academic freedom and therefore courage are as necessary as in the discussion of the relative viability of different social systems now competing for primacy. We must have responsible freedom. After the Spanish restoration in 1874, the monarchical government demanded a loyalty oath of all professors, and so did Perón in Argentina. In neither case did it guarantee the perpetuation of those regimes. Every professor takes a solemn, and I would say religious, oath to veritas, and we must conduct ourselves with the utmost sense of responsibility. More than this must not be asked of us.

One final note of warning. By refusing to display a serious concern for the contemporary world, language teachers may find that they are being displaced by the social scientists, who find it easier to work with computers than with foreign languages. Indeed, a behavioral scientist may be defined as one who makes up for his ignorance of foreign languages by writing execrable English. In announcing recently large grants for Latin American Studies, the Ford Foundation made the quite inaccurate and unjustified statement that earlier Latin American programs had concentrated on languages, while the new programs would concentrate on the social sciences. Since in the old area programs there was a good balance between language study and the social sciences, this can only mean that the intention is to downgrade the importance of foreign language study.

In the computer revolution which is going on, there are some behavioral scientists who say in all seriousness that their IBM machines tell all we need know about foreign countries and that the study of languages is unnecessary. The results they have achieved are grotesque. Think how happy the monks of Byzantium would have been if they could have had a computor to calculate how many angels could stand on a pin's head!

Man's most dignified attribute, intelligence, is threatened on one side by the little machines of the language teachers and on the other by the big machines of the social scientists. Will intelligence survive in our universities? I ask our language teachers to help ensure this. Should it be otherwise, there is no doubt that the big machines will beat the little machines.

FOOTNOTES

[1] See William Parker, The National Interest and Foreign Languages, UNESCO pamphlet, 3rd edition, 1962.

[2] See Ronald Hilton, The Study of Contemporary Latin America, U.S. National Conference for UNESCO, 7/SEC. A/4.4.

[3] Orlando Fals Borda, Peasant Society in the Colombian Andes; Gerardo and Alicia Reichel-Dolmatoff, The People of Aritama; see Hispanic American Report, XV, 95-6.

[4] See Hispanic American Report, XV, 285.

PSYCHOLOGICAL APPROACHES TO THE STUDY OF LANGUAGE[1]

Wallace E. Lambert

My assignment was to set forth and explain certain subject matter and research from the field of psychology that, if included in the training of language specialists, would enrich their understanding of the phenomena of language and increase their efficiency as teachers of foreign languages. Accordingly, I have selected various psychological approaches to language that seem to me to be of instructive value and practical use to language teachers. These particular approaches were selected because they promise to be of permanent value both in explaining the known facts about language and in orienting future research. To limit the scope of this paper, no consideration will be given to other psychological developments that could be of value to language teachers even though they do not deal with language specifically. For example, language teachers and their trainers could profit from a careful study of current research in the psychology of personality and the problem of attitude changes. Psychological work on these matters suggests means of selecting those who would be most effective as language teachers, and indicates effective ways of forming favorable attitudes towards other cultural groups--matters as important as they are neglected in educational research.

My aim is to introduce briefly the basic ideas and implications of each approach, as I see them, with a view of enticing seminar members to turn to the more complete accounts which are referred to in the references.

1. Theories of Learning of Relevance for Language Specialists

Since its beginning as an independent discipline, psychology has considered the phenomena of language and the language learning process as important matters falling within its field of specialization. But since World War II, a surge of interest in the cognitive aspects of behavior and the development of new methodologies have generated a widely-felt hope that perhaps now psychologists can systematically study the phenomena of language rather than speculate about them. Today many psychologists are starting to teach courses and conduct research on "verbal behavior," "psycholinguistics," and "language and thought." This new attitude stems from advances, perhaps normal ones, in many fields of specialization that feed into psychology, for example, advances in the neurology of brain functioning, in statistical and experimental procedures, in the design and operation of computers, and in methods of language teaching. As a response to these developments, psychologists are beginning to extend their principles and theories beyond the level of animal research (so very necessary for the establishment of basic principles in the first place) to the more complex behavior of man. Currently, all major theories of learning concern themselves with language and the growing body of empirical data on the subject. The following discussion of two contemporary learning theories is needed to understand the current psychological interest in two basic processes: meaning, the symbol-referent problem, and verbal behavior, how words are used in communication, either as units or as elements in larger response sequences. What follows is a very brief sketch of two contrasting learning theories, one dealing with meaning, the other with verbal behavior. There is nothing necessarily inconsistent in a discipline having more than one scheme of analysis to integrate facts and explain events, especially when these are as complex as learning and human cognitive behavior. As more data becomes available, two or more theories of learning may prove to be necessary, or as others very convincingly argue[2] a single set of principles may ultimately draw the two schemes together.

The contrast here is between what are called "classical" and "instrumental" forms of conditioning or learning. "Classical" refers to Pavlov's notions about the response conditioned to an unnatural stimulus. In this case, a stimulus with some "natural" or built-in evocative tendency (such as a hammer tap on the patellar tendon of the knee which evokes an involuntary muscular kicking response) can be replaced by a stimulus that is "unnatural" for such a response (such as the sound of a bell). The unnatural stimulus takes over the evocative capacity of the natural stimulus when the two stimuli are repeatedly paired in the order bell -hammer tap, bell - hammer tap, etc. for a long series of presentations. Several notions are of importance in this statement. A stimulus which has a natural response sequel is a required ingredient; this is the "unconditioned" or uncontaminated element. The knee jerk is not a natural sequel to the hearing of a bell, and when a bell - knee jerk connection is finally made, the kick response is referred to as a "conditioned" response and the bell is called a "conditioned" stimulus. The time separating the conditioned and unconditioned stimuli is of major importance. The two stimuli must be nearly simultaneously presented, the conditioned stimulus (the bell) coming a fraction of a second earlier than the unconditioned stimulus. It is not known how this transfer of evocative capacity takes place; psychology and neurology have had and will continue to have fun trying to understand the process. But the empirical facts are very dependable. Pavlov's dogs salivated (a conditioned response) to the sound of a bell (a conditioned stimulus) when bell and food were repeatedly paired. And Pavlov's dogs were not special in this respect. Literally thousands of experiments have demonstrated the phenomenon with organisms at nearly every level of the phylogenetic scale.

The evocative capacity of the conditioned stimulus, when on its own, is ephemeral; it must be "re-charged" by being periodically paired with the unconditioned stimulus. The repeated association of the two stimuli permits the transfer of evocative capacity and there must be periodical re-association of the two if the transferred capacity is to maintained. When fully charged the conditioned stimulus itself can be repeatedly paired with a second unnatural stimulus (for example, the flash of a light) permitting the second conditioned stimulus to pick up the charge in the sense that it, too, can evoke the "conditioned" response. This chain of events is referred to as "second-order" conditioning. If a second conditioned stimulus which is similar in some sense to the first is introduced for the first time, it will also have an evocative capacity to call out the conditioned response. The conditioning is said to "generalize" to related stimuli, the degree of generalization depending on the degree of similarity between the original conditioned stimulus and the "similar" stimulus. If the original bell had a tone quality of 300 c.p.s., generalization would likely take place to a tone of 325 or 275 c.p.s.

Note in this argument that the conditioned stimulus (the hearing of a bell) functions as a signal or sign that something is to come, somewhat analogous to a symbol relating to its referent. The organism comprehends that the bell "stands for" the hammer tap and it is likely that a mental image of the hammer tap eventually occurs when the signal is received, as though some mental replica of the actual referent is evoked by the symbol because of changes within the nervous system introduced by the continual pairing of stimuli. Here, in compressed form, is the psychological basis for the relation of symbols to referents. Charles Osgood[3] (1953) has made this extension of the theory especially clear. For Osgood, the meaning of a sign or symbol *is* the mental or neurological counterpart, in attenuated form, of the actual emotional and behavioral responses that have habitually been made to the referent for which the symbol stands. That is, linguistic symbols are originally learned in a context where they are repeatedly paired with their appropriate referents. An infant hears the word "dog" repeated several times while in the presence of an actual dog and in time whatever emotional and behavioral reactions are elicited by the presence of the actual dog are transferred to the symbol "dog." Symbols then come to evoke some miniature replica of the actual responses made to the referent, and these responses, referred to as "representational mediational responses," constitute the meaning of the symbol. They *represent* or stand for the full-pattern of responses made to the referent, they *mediate* or link the responses made to the referent with those made to the *symbol*, and they are some form of nervous system *response*, hence their label, "representational mediational responses."

Osgood uses this scheme to explain how meanings are developed directly through classical learning principles or how meanings are "assigned" to us, ready-made so to speak, by "teachers" in our social environment. Because Osgood's conceptualization of meaning has the advantage of integrating a wide range of empirical facts, and because it has stimulated so much current research,[4] it should be of particular value in the teaching of languages. It offers a new and instructive orientation to meaning and it will suggest methods of studying the development, assignment and modification of meanings--matters of everyday concern to language teachers. Comparisons can be made of methods of teaching languages and their effectiveness in developing vivid and persistent meanings. The work of Staats & Staats indicates how favorable (or, inadvertently, unfavorable) emotional components of meaning can be assigned to foreign language vocabularies as they are being learned. The work of Lambert & Jakobovits shows how meanings can be dissipated or "satiated" when continuous repetition of words takes place, as in vocabulary drill.

Other psychologists are interested in "associative meaning," that is, the organized interrelations of verbal associations.[5] Verbal associations are determined by asking subjects to give the first word that comes to mind after they think about a particular word given them. For example, *night* popularly leads to *day* and *day* to *break* or back to *night*, etc. Verbal linkages of this sort are learned according to principles or "laws" of association, in particular the laws of contiguity, similarity and frequency. One association leads to another apparently because they have frequently occurred in sequence in the past, in much the same way as contiguous elements become linked in classical conditioning.

This group of researchers is less concerned with the symbol-referent problem than with the reliable or common patterns of verbal associations themselves. They have been able to determine the similarity of associative meanings of words by their associative overlap. For example, Deese noted that piano and symphony do not associate directly with one another but they both elicit a common set of associations among college students: note, song, sound, noise, music and orchestra. Sub-groups of individuals of similar age and educational background have very similar associative networks. (There are some interesting exceptions. For example, some have closed associative networks, where night leads to day and day to night, whereas others, with quite different personalities, have wide open networks with little or no circular units.)

Foreign language teachers could utilize these common associative structures to advantage in their teaching procedures. For instance, vocabulary training might be patterned on the common networks of native speakers of the language. As students become skilled in their second language, fascinating studies of the networks in the two languages could be conducted. Certain associative networks might be found to be similar in the two languages while others are dissimilar. If so, one might then examine the dissimilar networks as sources of semantic interference between languages. Furthermore, grammatical or syntactical structures in two contrasting languages could be studied with this procedure. For example, Lambert[6] noted that the French noun-adjective word order affected associative networks in a quite different fashion from the English adjective-noun word order.

None of the richness of language is lost in the treatment given it by these psychologists. In fact, they contribute to its richness by highlighting its complexity. They do not claim to have made much more than a start, but few will disagree that they have started a promising movement of language research. The excitement of the psychologist in the study of meaning, noted especially in the work of Osgood and Mowrer, contrasts with the uninterested treatment given the problem by most linguists.

B. F. Skinner of Harvard is the best known modern exponent of a contrasting form of learning known as instrumental conditioning.[7] The distinctive characteristic of instrumental learning is the importance attributed to the receipt of a reinforcement of some sort when a particular response is made. Consider the case of an animal that, presumably in his exploration and random activity in a puzzle box, accidentally depresses a lever situated at one end of the box. The box is typically rigged so that on depression of the lever the animal immediately receives some desired outcome. For a cat in a puzzle box, the lever depression can open a door and release the animal; for a hungry white rat or pigeon, the lever pressing may deliver a pellet of wanted food. Getting out or getting wanted food are examples of "reinforcements" or rewards. Timing is crucial in this form of learning, especially the interval separating the organism's responses (lever pushing) and the reception of reinforcement (food pellet). Note that in this case there is no close temporal pairing of an unnatural stimulus with a natural one as was the case in classical conditioning. Instead, attention is given to the development of a brand new response that is brought under the management of other people in the environment (in this case the experimenter who controls the food-delivery mechanism) who control the doling out of reinforcements when the appropriate response is made. Once the reinforcement has been received, the response potential is raised and it will be noted that on further trials the organism will more quickly move closer to the lever and, with consistent reinforcement, will execute the new act with polished efficiency. When reinforcements are withheld, the lever-depression habit will gradually be "extinguished," that is, the animal will refrain from pressing the lever. Signals can be introduced to inform the animal when it is appropriate to respond. For example, a light can be flashed to indicate that the lever-pressing will now lead to reinforcement. After practice, the animal will differentiate when it is worthwhile responding and when not. The basic plan can be complicated when two animals learn to cooperate. Skinner describes how two pigeons can be taught to respond in coordination if food reinforcement is given both for a coordinated set of responses. With this example, Skinner moves his attention up to the intricate level of cooperative behavior and his experimentation suggests that simple forms of animals are docile enough to learn a at least the rudiments of cooperative behavior.

Food is only one type of reinforcement which proves effective. Animals will also learn complicated patterns of response to escape from confinement or from fearful settings, or they will learn how to turn on a light when subjected to darkness. If the reinforcement is given with care, the animal will learn precise response sequences, but if the reinforcements are administered haphazardly, the nature of the habit learned will also be vague and over-generalized. The reinforcements need not be regular, however. If the reinforcements are presented only a certain proportion of times (some responses reinforced and others not) the habit is often more rapidly learned and better retained than when reinforcements are given consistently. When they are given, however, the reinforcements must be precisely timed. Animals will often learn "superstitions" or unnecessary elements of responding. For example, a pigeon may have stretched its neck just before pecking an electronically-active button. The pecking response leads to food reinforcement, but for the animal the total sequence (neck stretch and then peck) is learned, so that neck-stretching regularly precedes the pecking response, in much the same way a baseball batter will spit on his hands, knock the dirt from his cleats, and twist his cap as he waits for a pitch.

In his major work on "verbal behavior," Skinner[8] views the learning of language in essentially the same terms he uses to analyze the development of simple habits. Drawing on certain descriptive facts about the infant's extensive repertoire of sounds, Skinner argues that others in the baby's environment give reinforcements for the production of certain sound patterns and thereby restrict his range of sounds and make more probable certain oral productions. The parents or siblings must wait for the child to produce (presumably in his random verbalizations) something which is close enough to "belonging" so that they can realistically reinforce the attempt. For example, an infant's "baba" may be close enough to "mama" to surprise and please a new mother, and her excitement may be transmitted to the infant in the form of affectionate and spirited attention. This attention is an example of reinforcement, and in this sense the child should be launched on a word-learning program. The reinforcements used are more social in nature than was the case with the animal studies mentioned above. It is argued that the infant and child will learn symbols for objects in his environment because he thereby gains a control over people and things. Saying "milk" or something close enough to be understood as "milk" gets him something he wants. If his attempt is not recognizable, he suffers a frustrating delay in getting things which prompts him to be more exact. Following the pattern of instrumental learning, the word learner also learns to be a "demander" if he consistently gets what he asks for, i.e., if he is reinforced for demanding.

If the child's socializers hold off reinforcement until the verbal response is clear and appropriate, his use of words will be precise. However, others are often unable to check on the appropriateness of a response. When a child says he has a "stomach ache" (a very private feeling) he may actually have a pain in the intestinal region. The child may receive sympathy and some general pain reliever and thereby incidentally be reinforced for the idea that "stomach" runs from the throat region to the groin, with no differentiation being called for. On the other hand, the skill of the literary artist who can precisely describe very private emotional states is likely attributable to his having received appropriate reinforcements. Thus, infants, children and adults may be precise or sloppy in their use of words depending upon the exactitude with which reinforcements have been administered to them for their verbal attempts.

It is characteristic of Skinner to leave matters such as semantics to others. His writings are marked by his zeal to be a "descriptive behaviorist," meaning that he wants to keep his attention on observable behavioral responses and to relate them to such observable environmental events as reinforcements. Any theorizing about internal mental or neurological processes is scorned by him and his large host of followers. Meaning is considered as a mentalistic concept and he tries to explain language without reference to it. He is hampered in this attempt because his theory is limited.[9] Consequently it may appear that he approaches psychological matters much as an engineer might, given the two notions that simple responses can be quantified and that certain reinforcements are effective when properly administered. It is difficult for those not aware of Skinner's desire to help psychology become a "science" to understand his hard-headed position. However, in view of recent developments in cognitive and neurophysiological psychology, an imaginative person like Skinner must feel that being forced to be consistently the descriptive behaviorist is really being left with a very sticky wicket!

But the practical implications of this movement should be well understood by language specialists. Much important research has issued from his basic notions, much of it of direct relevance to the language learning of human subjects. For example, it has been clearly demonstrated that well-established verbal habits (some simple[10], and others more complex[11]) can be modified under certain schedules of reinforcement. In these studies, subjects are typically reinforced by the experimenter's saying "good" or "uh-huh" when, for example, the plural forms of nouns or particular pronouns are used in sentence constructions. Because of the reinforcement, the tendency to use the reinforced forms is markedly increased. Barik and Lambert found that complex structures can also be modified by verbal reinforcement. For example, a person who habitually forms his sentences in the fashion: "This is the (house) that (burned) last night" can be trained to shift to the form "This is the (house) that (I saw) burning last night." Apparently these modifications take place without the subject becoming aware of any relation between the experimenter's saying "good" and his own behavior, although this point is not certain as yet.[12] These developments can be of immediate importance for language teachers who can be either effective or ineffective as social reinforcers of their students' attempts to develop appropriate verbal habits.

The most recent development in Skinner's thinking is evident in his interest in programmed learning and teaching machines.[13] Mechanical modes of instruction are old ideas in psychology. They didn't catch on in the 1930's but are being enthusiastically entertained today, perhaps because Skinner is such a convincing proponent and because there has been a value shift toward mechanized instrumentation (gadgets) in this era. Skinner argues that teaching machines in certain respects are more effective than are teachers. The machines escape the problems of developing potentially unhealthy interpersonal dependencies between pupils and teachers. Furthermore, programmed machine instruction is tailor-made to each student's learning pace. The machines also control the timing between the pupil's response and his reinforcement (in this case, reinforcement is the realization that he was correct and that he may now move on to the next step). Furthermore, since the machine teaches so effectively, the student feels he is clearly progressing in his task and is much better motivated than is the case in most classrooms. Experienced teachers who are not psychologists should study this new development, comprehending its origins. And they should study it soon before it's too late, since so much money will be invested in these potentially useful procedures that educationists will be unable to evaluate objectively their long-term effectiveness in teaching. For this purpose experimentation should be started soon. They may have a strong initial or novelty effect with teen-agers that diminishes rapidly. The programmed materials should be tested in classroom settings without the machines themselves. The creation of good programs depends on a personal skill. Programs can be of great help for teachers who do not have the time or ability to analyze course content into its most logical steps. On the other hand, programs should be carefully examined by specialists in human abilities (see section 3 below) to be more certain that the sequencing of steps is actually psychologically appropriate and maximally beneficial.

2. Neurophysiological Bases of Thought and Language

As we have seen, Skinner focuses attention on observable responses, including speech, and, in the manner of a skilled technician, indicates how response patterns can be developed, manipulated and modified. The empirical research of those adopting this approach is impressive and usually of great practical value. Because the proponents of the approach reject the use of theory, they also contribute little to psychological theory and this bias may eventually limit the movement's contribution to psychology. An important counter-movement, developed particularly during the past fifteen years, is probing much deeper into the organism than those interested only in response patterns care to. This group is interested in inside mechanisms, those processes going on within the nervous system of people when they speak and comprehend others speaking. These processes have been alluded to by Osgood in his description of meaning, likely because Osgood's own thinking has been guided by this movement. In fact, neurophysiological psychology is becoming one of the most popular areas of specialization for academically trained psychologists. The theories and research findings of this group should be of interest for teachers of language, at least for those who have seriously pondered the magical complexity and beauty of language, and for those who may be discouraged about psychology's role in the study of language because they have primarily encountered technician-type psychologists.

One of the chief catalysts in this new movement is Donald O. Hebb.[14] His aim in psychology has been to extend the significance of psychological concepts, especially those concerned with complex cognitive processes, by relating them to what is known about the neurology of the central nervous system. As a consequence of attempting to make this integration, he has liberalized some neurophysiological concepts and theories far beyond the known facts, and, at the same time, he has forced most psychologists to become interested in the workings of man's nervous system and brain, stimulating many of them to search for neurophysiological correlates of psychological phenomena.

What are his basic ideas? First of all, he feels that the study of thinking should be psychology's major concern, and thought processes are the central theme of his own work. He is interested in how contacts with the environment leave their residues or traces within the nervous system, how, in other words, the nervous system stores up images and memories which can later be called into play often without the intervention of environmental stimulation. All the evidence in neurology and physiology made it clear that the brain is in a continuous state of activity, slowing down only in deep sleep. Other evidence suggested that nerve cells were so distributed that one cell could activate neighboring cells. When an appropriately interconnected family of cells received one unit of stimulation, it would be passed on to the whole family. If, as seems to be the case in certain centers of the brain, the family unit of cells were appropriately intermeshed, a stimulation from one cell would lead on to another and, in a chain-like fashion, the stimulation would ultimately come back onto the first cell again. In such a fashion a stimulated network could store the input signal and maintain its fidelity long after the environmental stimulation had ceased. Not only were there networks of cells found in the brain which might become reverberatory circuits of this sort, but it was also noted that the transition points from one cell to the next often involve a physical enlargement, a "terminal end bulb." These bulbs, it is argued, might facilitate transmission within a circuit; in fact it may be that the bulbs develop from regular and continuous contact between certain nerve cells. Once a circuit unit has become established, it would be possible either for outside stimulation to activate the whole unit or for some other inside stimulation, coming from another point in the continuously active nervous system, to activate a unit.

These reverberatory circuits Hebb calls "cell assemblies." It is apparent that such systems as these could[15] well be the neural centers underlying the mediating processes described by Osgood. Representational mediation processes, considered by Osgood to constitute meaning, could have the biological form of assemblies of cells. Cell assemblies could become conditioned responses to verbal symbols so that they are activated when a symbol is recognized in either its auditory or visual forms. The activation of assemblies could revoke the complex of responses formerly made to the referent for which the symbol stands, as Osgood's theory demands.

Cell assemblies, according to Hebb, can have elements in common with other functionally distinct assemblies. For example, in a series such as ABCDX and ABCDY (where each letter stands for a cell assembly and the whole series makes up what he refers to as a "sequence" of assemblies) two different sequences can have certain assemblies in common. This postulate of the theory suggests that there may be a neural mechanism whereby root words can take on various endings and yet be recognized as derived from a common core. Synonyms, too, can be thought of as having certain assembly elements in common. Hebb argues that two originally distinct assemblies of cells which habitually play functionally similar roles can become fused into a single neural system if no new element is introduced to reinstate their distinctiveness. Furthermore, two very similar networks of cell assemblies can develop more permanent distinctiveness if some elements are regularly found to play discriminable roles. In this fashion, Hebb describes how either fused or separated neural systems could develop. Such systems could, in turn, help explain how we can be precise in our use of synonyms and antonyms in language and how bilinguals manage to keep second-language equivalents functionally distinctive from first-language concepts. Recent theorizing about coordinate and compound bilingual systems have profited from Hebb's perspective.[16] A recent paper by P. Milner,[17] a colleague of Hebb, discusses a mechanism of neural inhibition which helps account for the bilingual's control over inter-lingual interference. Milner indicates that certain adjacent neural structures function in a reciprocal manner so that when structure X is activated the adjacent structure Y is automatically made inactive and unable to be stimulated. This mechanism may turn out to be an explanation of how bilinguals can keep their languages functionally segregated in usage, especially in the case of "coordinate" bilinguals (see Section 4 below.) That is, when the sequence of cell assemblies underlying the concept "house" is activated, the correlated neural assemblies underlying the concept "maison" may automatically be made inactive. Or when the neural mechanisms underlying a total language system, such as English, is activated, it may make the potentially competing system inactive.

Hebb is interested, as was K. S. Lashley before him,[18] in how complex sequences of responses can be so perfectly coordinated as is the case with the arpeggios of a skilled violinist or the rapid speech of native speakers of a language. Hebb argues that the appropriate serial ordering of such sequences is determined both by the "sensory feed-back" received when a single response is completed and by the action of mediating processes or cell assemblies within the central nervous system. A sequence of cell assemblies could have some order built-in to it during the course of its development into a sequence. But Hebb feels this would not likely be sufficient. Take the case of the arpeggio. A violinist can perform up to 16 finger movements a second. The precise timing of the different responses cannot be determined by feedback from each preceding movement because there is insufficient time. There is only about 50-60 milliseconds available before the next response, and the established reaction time for tactual stimulation is much slower, taking 140 milliseconds. But Hebb believes that possibly the feedback from the first response to the brain could regulate the fourth or fifth output in the long sequence, so that precise ordering could be achieved. In a similar fashion, Hebb argues that a speaker's sentence construction cannot be explained "as a series of CR's (conditioned responses) linked together by feedback alone," or as entirely controlled by cell assemblies, since there are strong indications that his thought processes (controlled by cell assemblies) run well ahead of his actual articulations. Apparently some word ordering and grammatical sequencing must first be decided on, then rapidly scanned and found appropriate, and finally, set in motion while active thought moves on ahead to the next phase. This whole chain of processes is remarkably fast and "automatic" in the native speaker, making a sharp contrast with the novice in a language who slows the process way down and makes evident to listeners that his thought and speech are running nearly in parallel.

For Hebb, both the mediating processes in the form of cell assemblies and sensory feedback must be necessary for the precise temporal sequencing required for normal speech. The background accompaniment of one's own speech testifies to the role of sensory feedback in speech. When the feedback of one's own speech is very slightly slowed down mechanically[19] one hesitates and is often unable to continue his normal speaking. Because of the inquisitiveness of men like Hebb and Lashley, we can look forward to continued research directed toward an understanding of how speech sequences occur.

Concepts, too, apparently have a neurological sub-structure. Hebb discusses how the concept of triangularity, for example, develops. As a consequence of the interplay between visual stimulation of triangular figures and ocular-motor adjustments made to them a sequence of cell assemblies is activated in those areas of the brain sensitive to visual stimulation (referred to technically as cortex region #17). Neurological findings have established that other areas of the cortex are concurrently active when cells are activated in area 17. For example, area 18 cells are concurrently made active when the cells in area 17 are stimulated by direct neural routes from the retina of the eye. It is argued that cell assemblies may be formed in area 18 and these may become electrochemically active whenever various different sequences fire in area 17, each area 17 response corresponding to a particular type of stimulation. Thus the co-related activity in area 18 is conceived of as the neural basis of a generalized concept, for example, of triangularity. Area 18 receives impulses from different assemblies in area 17 and also sends neural impulses to area 17 whenever a particular activity takes place in area 17, as though the conceptual system could indicate to the sensory receiving area that the new instance of stimulation belongs to a concept already established! Just as the visual system has its theoretically-possible "conceptual" neural centers, so other regions in the cortex very likely have a similar capacity for the conceptual development of other than visual information. These hypothetical centers concerned with the more generalized functions hold out a fascinating promise. They suggest that some day we will be able to understand more comprehensively the mechanisms which make possible the development and use of thought and language.

3. Language Aptitude and the Theory of Human Abilities

Psychology as a discipline offers a specialization in the study of "individual differences." Practitioners of this specialty, often referred to as psychometricians, make use of a number of skills, including competence in statistical procedures and their application to the theory, construction and evaluation of psychological tests. Psychometricians have historically been called on to answer questions about the nature of intelligence and human abilities and they have developed some of psychology's most comprehensive conceptualizations of human capacities and behavior. Because of their training and interests, psychometricians have been concerned with the selection and placement of personnel in academic and applied settings. Several, through personal interest in the nature of language, have studied the nature of language aptitude, carefully constructing batteries of ingenious tests designed to measure individual differences in such a capacity. Their products usually are about the closest to good science one can find in the social or biological sciences. Their contributions are often not fully appreciated because of naivete on the part of those who ultimately use their theories and tests. It is not often understood, for example, that each of the tests in a battery usually has a long and interesting history, and any test finally used must add its special predictive power to the total battery of tests. From the patterning of subjects' responses to the items of reliable and distinctive tests come theories of intelligence and aptitude.

We will be concerned here with the current work of one of these specialists, Dr. John B. Carroll of Harvard University who, with Stanley Sapon, developed an instrument of obvious value for those in the field of language--the Modern Language Aptitude Test.[20] In the following paragraphs, we will describe the test, indicating its usefulness in educational research and placement, and then discuss how this test is related to a theory of human abilities developed by George A. Ferguson of McGill University. Certain papers by Carroll[21] and Ferguson[22] are suggested as important summaries of the relevant features of their thinking.

The learning of a foreign language is one of the most difficult of human skills to develop. Furthermore, language training is expensive. One could argue from these two facts alone that military, governmental and educational institutions must select those who can most certainly profit from prolonged training, just as piano teachers and parents must select; to the majority of piano students, they communicate the fact that they have little chance for excellence. But just as a thorough introduction to piano can have important personal and educational value, so too can a series of well-taught introductory courses in foreign languages. Carroll turns his attention to the selection of those with great potential for languages, and in doing so his study of the components of language aptitude reveal for us the component skills that must be taught by teachers and learned by students. Future research will certainly reveal other components, and, of equal significance, it may also lead to a better understanding of the sequence or order in which these component skills should be learned and how best they can, if possible, be developed.

What are some of these components of language aptitude? The following extensive quotation gives a summary of Carroll's answer.

> "Our current thinking tends to consider language aptitude under the following headings:
>
> (1) Phonetic coding. One of the most important abilities required in learning a foreign language is the ability to "code" auditory phonetic material in such a way that this material can be recognized, identified and remembered over something longer than a few seconds....Thus, this ability is not the ability to make an echoic response to phonetic material, but the ability somehow to "code" or represent it in imagery so that it can be recognized or reproduced after an intervening period filled with other activity. This ability, it would seem, is measured chiefly by the Phonetic Script Test, in which the individual has to learn how a series of speech sounds are represented by alphabetic characters;...
>
> In learning a foreign language, a person low in this ability will have trouble not only in remembering phonetic materials (words, forms, etc.) but also in mimicking speech sounds.

> (2) A second important variable in language aptitude is the ability to handle "grammar," i.e. the forms of language and their arrangements in natural utterances. This implies that the individual is senstivie to the functions of words in a variety of contexts....It is postulated that this trait is particularly well measured by the Words and Sentences subtest of the Modern Language Aptitude Battery.
>
> (3) A third important variable is that of rote memorization ability for foreign language materials. This ability.... has to do with the capacity to learn a large number of these associations in a relatively short time....We may postulate that the Paired Associates test measures this ability fairly accurately; it is also tapped by the Number Learning test.
>
> (4) A fourth variable...is the ability to infer linguistic forms, rules and patterns from new linguistic content itself with a minimum of supervision or guidance. It is not measured to any appreciable degree by the tests of the present final MLAT battery, but it had turned up in certain earlier studies.
>
> The above four factors do not include what is ordinarily called the verbal or verbal knowledge factor, which according to our results is not very important in predicting success. Vocabulary tests do not serve as particularly good predictors, at least in situations where other tests serve well, since the first stages of learning a language do not require one to acquire a large vocabulary. On the other hand, the present Spelling Clues test functions in part as a vocabulary test."

Carroll's evaluation of the test (summarized in his 1960 paper) indicates its great potential in selection and in educational research. The fact that the test is more valid in some settings than in others suggests that variables other than aptitude itself must also be involved in language learning efficiency. Carroll mentions that variables such as adequacy of presentation of the material, adequate opportunity to learn, individual differences in general intelligence, and motivation to learn may vary from situation to situation. In fact, in the final section of this paper we will discuss the role of certain other variables. It should be realized that Carroll expects that there will be modifications and improvements in the analysis of language aptitude.

What does Carroll mean by "aptitude?" He views aptitude as a "relatively invariant characteristic of the individual, not subject to easy modification by learning." This stable personal characteristic manifests itself in the rapidity of progress or advancement made in language learning when the language is well taught, particularly when the teaching is geared to the basic intelligence of the learner.

Carroll, therefore, views language aptitude as a relatively stable personal characteristic, one which is made up of various component skills or "abilities." It will be instructive to consider what is meant by "abilities" since they play such a fundamental role in more complex aptitudes.

Ferguson views abilities as relatively invariant aspects of behavior that manifest themselves in modes of responding to particular psychological tests. Thus one's "intelligence" is his peculiar pattern of abilities that have become stabilized for him at his particular age level. Abilities are developed through overlearning. The stability of behavior that characterizes an ability reflects the fact that little change in behavior occurs as learning is continued. Basically, then, individuals vary in terms of the speed with which they reach this point of behavioral stability, and also in terms of the level of skill attained before the stability manifests itself. These individual differences, Ferguson argues, can be attributed to some complex by-product of biologically transmitted capacity and the type and amount of "learning which occurs at particular stages of life," Ferguson agrees with Hebb that the sequencing of what is taught (and learned) at particular stages of the organism's development is of prime importance. "Early learning or its lack may have a permanent and generalized effect in the adult." Ferguson develops the important notion that "a slow learner under given learning conditions may have a capacity for ultimate performance in excess of the fast learner under the same training conditions." Likewise, people may have the abilities to learn rapidly in the earlier stages of learning, then perform so well, in relation to others, that they might not be prompted to acquire the necessary next-level abilities needed for later stages of learning. As a consequence, they might find themselves showing a stability of performance in the face of further training. This deceleration would not be due so much to a capacity difference as to poor sequencing of the learning of abilities; the point here is that there is proper and necessary order for the acquiring of abilities.

The sequencing problem may be crucial; Ferguson argues that "an individual will learn more readily activities which are facilitated by prior acquisitions, and will learn less readily those activities which are not facilitated or are perhaps inhibited by prior learning." He also notes the likelihood that the transfer effects from previously acquired abilities are of greatest importance in the early stages of learning new activities. Ultimately, learning for the adult involves in large part a transfer and integration of appropriate components from previously acquired abilities. Future research, following from such a theory as Ferguson's, may indicate how this integration of abilities may be properly taught and properly learned.

Perhaps the most important notion which emerges from this approach is a novel one for most people: men's abilities are not permanently fixed by hereditary background. "This position is no longer tenable. Although it is conceded that biological factors fix certain boundaries, all the evidence seems to suggest that the range of variation that results from learning is, indeed, very great. If this is so, it immediately raises questions of value and social responsibility. It means that a society, through control of the environment and the educative process, can in some considerable degree determine the patterns of ability which emerge in its members."

The implications of this view of abilities for language teachers are immense. Over and above its value as a general theory, it offers various practical guides: that the learning of languages should be shifted to early age levels, or that experimentation on such a shift should be undertaken with very careful consideration given to ability requirements and their sequencing. It suggests that modern movements should be carefully studied to determine which students, according to their patterns of abilities, will profit from such new approaches. For example, the generalized plan of commencing second languages audio-lingually at all age levels probably has not taken into consideration age level changes in ability structures, nor individual differences in visual and auditory preferences at any age level.[23] It may well be that the audio-lingual method is appropriate for second language learning at very early levels for certain children, but it may, for older subjects, run counter to ability patterns developed over many years.

The theory also suggests that the next steps in language aptitude research might profit from a consideration of which abilities, such as the those isolated by Carroll, typically show themselves at specific age levels. The sequencing of training in different skills could capitalize on normal age-level emergences of particular ability patterns. As a first step in this direction, those ability patterns that are considered basic to language aptitude could be isolated for children and adolescents at various age levels.

4. A Social-Psychology of Second-Language Learning

When viewed from a social-psychological perspective, the process of learning a second language takes on a special significance. From this viewpoint, one anticipates that if the learner is appropriately oriented, he may find that by learning another social group's language he has made the crucial step in becoming an acculturated part of a second linguistic-cultural community. Advancing toward bi-culturality in this sense may be viewed as a broadening experience in some cases, or it can engender "anomie," a feeling of not comfortably belonging in one social group or the other. With a different orientation, a language learner may look on his learning task as making him better educated or more cultured, or as equipping him with a useful skill for his future occupation, with little regard for the culture or the people represented by the other language. In other circumstances, one might consider learning another group's language as a means of getting on the "inside" of a cultural community in order to exploit, manipulate or control, with clearly personal ends in mind.

A series of studies carried out at McGill has been concerned with such topics, and various findings have increased our confidence in a social-psychological theory of language learning. This theory, in brief, holds that an individual successfully acquiring a second language gradually adopts various aspects of behavior which characterize members of another linguistic-cultural group. The learner's ethnocentric tendencies and his attitudes toward the other group are believed to determine his success in learning the new language. His motivation to learn is thought to be determined by his attitudes and by his orientation toward learning a second language. The orientation is "instrumental" in form if the purposes of language study reflect the more utilitarian value of linguistic achievement, such as getting ahead in one's occupation, and is "integrative" if the student is oriented to learn more about the other cultural community as if he desired to become a potential member of the other group. It is also argued that some may be anxious to learn another language as a means of being accepted in another cultural group because of dissatisfactions experienced in their own culture while other individuals may be equally as interested in another culture as they are in their own. However, the more proficient one becomes in a second language the more he may find that his place in his original membership group is modified at the same time as the other linguistic-cultural group becomes something more than a reference group for him. It may, in fact, become a second membership group for him. Depending upon the compatibility of the two cultures, he may experience feelings of chagrin or regret as he loses ties in one group, mixed with the fearful anticipation of entering a relatively new group. The concept "anomie" first proposed by Durkheim,[24] and more recently extended by Srole,[25] and Williams,[26] refers to the feelings of social uncertainty or dissatisfaction which sometimes characterize not only the bilingual but also the serious student of a second language.

We are viewing the learning of a second language in much the same way as Mowrer interprets the child's learning of his first language. Mowrer's fascinating "autistic" theory[27] differs in an essential manner from Skinner's approach to the matter. For Mowrer, word learning in talking birds and children takes place when the sounds of words have come to carry a reinforcement power in themselves so that the learner wants to produce words. The sounds become reinforcing agents throughassociation with the users of words who are held in affection by the learner. Language learning is motivated by a basic desire to be like valued people in one's environment, first family members and then others in the linguistic community. The language learner has to identify with language users to the extent that he wants to be like them linguistically, and undoubtedly in many other ways. It is not the case, as Skinner would require it, that the learner must emit words and have them immediately reinforced. All that is necessary, Mowrer makes clear, is for the word to be said by the bird trainer or the child's mother and have this sound followed by a reinforcing state for the learner (in the form of reception of food for the bird or affectionate handling for the child). "The secondary (autistic) reinforcement provided by the sound of the word is alone sufficient to bring it (the word) into existence." In similar fashion we argue that the learner must want to identify with members of the other linguistic-cultural group and be willing to take on very subtle aspects of their behavior such as their language or even their style of speech. We also feel that there are various types of motivation which can underlie his willingness to be like the other group's members and we are interested in explicating each of these.

The first studies[28] were carried out with English-speaking Montreal high school students studying French who were examined for language learning aptitude and verbal intelligence as well as attitudes toward the French community and their intensity of motivation to learn French. Our measure of motivational intensity is conceptually similar to Jones'[29] index of interest in learning a language that he found to be important for successful learning among Welsh students. A factor analysis indicated that aptitude and intelligence formed a factor that was independent of a second comprising indices of motivation, type of orientation toward language and social attitudes toward French-Canadians. A measure of achievement in French was reflected equally prominently in both factors. In this case, then, French achievement was dependent upon both aptitude and intelligence as well as a sympathetic orientation toward the other group. This orientation apparently sustained a strong motivation to learn the other group's language. In the Montreal setting, it was clear that students with an integrative orientation were the more successful in language learning in contrast to those instrumentally oriented. (We have not concentrated on the manipulative orientation mentioned earlier and we are aware that a certain degree of error in classifying students may occur until attention is given to this form of orientation).

Gardner's 1960 study confirmed and extended these findings. Using a larger sample of English-Canadians and incorporating various measures of French achievement, the same two independent factors were revealed, and again both were related to French achievement. But whereas aptitude and achievement were especially important for those French skills stressed in school training, the acquisition of French skills, whose development depends on the active use of the language in communicational settings, was determined solely by measures of an integrative motivation to learn French. Further evidence indicated that this integrative motive was the converse of an authoritarian ideological syndrome, opening the possibility that basic personality dispositions may be involved in language learning efficiency.

Information had been gathered from parents about their orientation toward the French community. These data supported the notion that the proper orientation toward the other group is developed within the family; students with an integrative disposition to learn French had parents who also were integrative and sympathetic to the French community. The students' orientations were not related to parents' skill in French nor to the number of French acquaintances the parents had, indicating that the integrative motive is not due to having more experience with French at home but more likely stems from a family-wide attitudinal disposition.

A study by Anisfeld and Lambert[30] extended the experimental procedure to samples of Jewish high school students studying Hebrew at parochial schools in Montreal. They were administered tests measuring their orientation toward learning Hebrew and their attitudes toward the Jewish culture and community, as well as tests of verbal intelligence and language aptitude. These tests were correlated with measures of achievement in the Hebrew language at the school year's end. The results support the generalization that both intellectual capacity and attitudinal orientation affect success in learning Hebrew. However, whereas intelligence and linguistic aptitude are relatively stable predictors of success, the attitudinal measures vary from one social class school district to another. The measure of a Jewish student's desire to become more acculturated into the Jewish tradition and culture was sensitive for children in a district of Montreal where socio-psychological analysis of the nature of the Jewish population's adjustment to the American Gentile culture suggested that these particular Jews were concerned with problems of integrating into the Jewish culture. In another district, made up of Jews more recently arrived in North America who were clearly of a lower socio-economic class level, the measure of desire for Jewish acculturation did not correlate with achievement in Hebrew whereas measures of pro-Semitic attitudes or pride in being Jewish did.

More recently, students undergoing an intensive course in French at McGill's French Summer School were examined for changes in attitude during the study period.[31] Most were American university students or secondary school language teachers who referred themselves more to the European-French than the American-French community in their orientations to language learning. In this study, it became apparent that feelings of anomie were markedly increased during the course of study. As students progressed to the point that they "thought" in French, it was noted that their feelings of anomie also increased. At the same time, they tried to find means of using English even though they had pledged to use only French for the six-week period. The pattern suggests that American students experience anomie when they concentrate on and commence to master a second language and, as a consequence, develop stratagems to control or minimize such feelings.

The most recent study[32] compares 10-year old monolingual and bilingual students on measures of intelligence. Of relevance here is the very clear pattern that bilingual children have markedly more favorable attitudes towards the "other" language community in contrast to the monolingual children. Furthermore, the parents of bilingual children are believed by their children to hold the same strongly sympathetic attitudes in contrast to the parents of monolingual children, as though the linguistic skills in a second language, extending to the point of bilingualism, are controlled by family-shared attitudes toward the other linguistic-cultural community.

These findings are consistent and reliable enough to be of more general interest. For example methods of language training may be modified and strengthened by giving consideration to the social-psychological implications of language learning. Important recent work by Paul Pimsleur and his associates lends support to our findings and the general theory.[33] Because of the possible practical as well as theoretical significance of this approach, it seemed appropriate to test its applicability in a cultural setting other than the bi-cultural Quebec scene. Our most recent study[34] was therefore conducted in various regional settings in the United States, two of them also bi-cultural and a third more representative of "typical" urban American cities. The bi-cultural settings permitted an examination of attitudes working two ways: attitudinal dispositions of American students toward linguistic minority groups in their immediate environment and the general attitudes of members of the cultural minority group toward the general American culture about them. In this study, we were interested in comparing the importance, in the language learning process, of intellectual ability and language learning aptitude, on the one hand, and social attitudes toward the "other" language group and motivation to learn the language, on the other hand. Our attention was first directed to an examination of how these variables affect the language learning of American students who come from homes where only English is spoken. In order to compare the results of the U.S. investigation with earlier studies carried out with English-speaking students learning French in Montreal, we chose two samples of students from bicultural American communities in Louisiana and Maine. A third sample of American students was drawn from the public school system of Hartford, Connecticut, considered representative of most large city school systems along the Eastern coast of America. The Connecticut setting did not have a distinctive sub-community of Franco-Americans in its immediate environment comparable to those in the Louisiana and Maine districts studied. Thus, the Hartford students would not be expected to have a clear linguistic cultural group in their immediate experience toward which favorable or unfavorable attitudes would have developed through direct contact.

A large battery of tests was administered to these students early in the year, and near the end of the year, tests of achievement in French were given, and grades in French were obtained from teachers. The tests were intercorrelated and factor analyzed. The resulting patterns of interrelations were studied and interpreted. The results indicate that, similar to the Montreal studies, two independent factors underlie the development of skill in learning a second language: an intellectual capacity and an appropriate attitudinal orientation toward the other language group coupled with a determined motivation to learn the language.

The second phase of the investigation was concerned with the role of aptitudinal, attitudinal and motivational variables in the linguistic development of potentially bilingual Franco-American students--those coming from homes in which primarily French was spoken. Two samples of Franco-American high school students were chosen from the Louisiana and Maine settings. The analysis indicated the manner in which social attitudes toward their own linguistic group and the American culture around them influence their (a) progress in becoming bilingual, (b) retaining the dominance of French, or (c) developing dominance of English. The manner in which the Franco-American student faces and resolves the cultural conflict he is likely to encounter in the American society was found to determine his linguistic development in French and English.

The third phase of the study focused on a comparison of Franco-American students from the Louisiana and Maine settings. The results make it very clear that whereas the Louisiana French culture is rapidly merging into the general American culture, the Maine community of Franco-Americans enjoys a comparatively dynamic and distinctive existence.

The fourth phase compared the Franco-American and American students in their various competence in French and in their attitudinal dispositions. The results reinforce the finding mentioned above of the cultural conflicts faced by Franco-American students. Furthermore, the Maine Franco-Americans show a decided superiority over the American students in their French skills whereas the Louisiana Franco-Americans show little or no advantage in French over American students.

The fifth phase of the study examined the stereotypes both American and Franco-American groups of students hold toward French people. The analysis indicates that all groups except the Maine Franco-Americans hold unfavorable stereotypes of French people. The Maine Franco-Americans give evidence of a basic pride in their French heritage. The consequences of holding negative stereotypes toward the very people whose language one is supposed to learn become apparent in this analysis.

The sixth and final phase deals with the role of students' values in the language-learning process. The results indicate that achievement in foreign language training is not a central goal for American students. Rather it is apparently incidental to the more challenging goal of trying to find and prepare one's way for the future. Intelligence coupled with a value placed on achievement are major determiners of success in most school work, including the study of language.

These findings not only supply needed information about the student learning languages, they also point the way to a large number of next steps to be taken in the fascinating study of language learning and bilingualism.

5. A Psychology of Bilingualism

Psychologists are now becoming interested in systematically studying how one acquires a second language and how certain individuals are able to make efficient use of two or several languages. A group of us at McGill University have found the Montreal bicultural setting to be an outstanding field station for research on bilingualism. But we have also noted that the linguistic backgrounds of actual bilinguals are often too complex for experimental studies; as a consequence, we have been forced often to restate certain bilingual problems in a more general form so that they can be investigated with experimental methods that only approximate the real bilingual case.

Our first step was to develop means of measuring individual variations in bilingual skill.[35] This work assumed that linguistic habits should be revealed in tests calling for speed of response, a commonly accepted measure of habit strength. It was hypothesized that students with different amounts of study experience in a second language should show a corresponding facility in responding with the second language when required to. It was found that students at three progressively more advanced stages of experience with French showed progressively greater speed of responding to directions given them in French. This speed of response measure correlated highly with active vocabulary in French.

In a second study[36] a large number of tests were administered to students at various levels of skill in a second language, ranging from undergraduate experience to native-like competence. The pattern of results on these tests suggested that one's degree of bilingualism is reflected in his ability to perceive and to make efficient use of the words in either language. These studies made it evident that an adequate conceptualization of bilingualism should account for individual differences. That is, one person can show equal facility in his two languages and yet be comparatively a limited person in both languages. Another person can be intellectually brilliant in both his languages and equally skilled in both. Thus, we introduced the concepts of "bilingual balance," where a person shows essentially similar skills in both languages, and "linguistic dominance," where there is a measurably greater facility in one of the individual's two languages. Questions then arise as to how bilingual balance is best nurtured and what the psychological concomitants of balance are. Also, it has been intriguing to search out the motives and learning settings that promote dominance, especially cases where the acquired language becomes dominant over the first-learned language.

The next step was to study the "route" which leads to bilingualism.[37] Students at various levels of experience with a second language were given a series of tests differing in the complexity of their content. The results indicated that students have to surmount progressively more difficult levels of skill in order to approach native-like performance in their second language. The easiest level to master involved the acquisition of vocabulary and grammatical skills. Then the student must become experienced to the extent that he can react automatically in the second language. Then he faces the problem of surmounting a "cultural" barrier where, for example, he thinks in terms of culturally appropriate concepts, such as those revealed in the type and form of free associations given in the second language. At this stage, too, he must acquire a native-like accent in his second language. We have become interested in how the perfect accent is learned and we use a theory of "identification" with members of the other linguistic group to explain this process.

It is of psychological interest to understand how bilinguals can learn two symbols for each referent and yet manage to use each language system with a minimum of inter-lingual interferences. Consideration of this problem led us to examine the implications of theories of "coordinate" and "compound" bilingualism, proposed by linguists,[38] amd recently examined by psychologists.[39] This theory states that bilinguals who have learned their two languages within one context will develop a "compound" bilingual system. wherein the symbols of both languages function as interchangeable alternatives with essentially the same meanings. A "coordinate" system would be developed when the language-acquisition contexts were culturally, temporally or functionally segregated. This form of learning would promote bilinguals whose two sets of symbols would correspondingly be functionally more distinct and independent. We have tested these notions and have found that the learning contexts are apparently critical in determining the form of bilingualism which ultimately develops. Behavioral differences are measurable in terms of inter-lingual independence and degrees of similarity between meanings.[40] Coordinate bilinguals in contrast to compounds apparently can keep their two languages more functionally separated. They may be aided in this respect by the fact that they have distinctive connotative meanings for translated equivalents in their two languages. Furthermore, when the meaning of a symbol in one language is reduced through overuse, the other-language equivalent is not co-reduced as is the case for compound bilinguals.[41] We have also examined the implications of coordinate and compound systems among bilinguals who become aphasic.[42] Bilingual aphasics who learned their languages in a coordinate fashion are more likely to lose the use of only one of their two languages if they become aphasic whereas compound bilinguals show a more general language deficit affecting their two languages when they become aphasic.

This line of research suggests that inter-lingual interference is reduced for coordinate bilinguals by the intrinsic distinctiveness of their two languages while compound bilinguals may have to rely more on cues emanating from the language-usage contexts in order to minimize the potential interference. That is, compound bilinguals may be more prone to switch from one language to another if the context, in which communication takes place, prompts them to switch. For example, another communicator's use of a word or phrase from language X might prompt the compound bilingual to switch to language X; or the physical features of one member of a group might suggest that this person belongs to a particular linguistic group and be a sufficient cue for a compound to use a particular language. If the context provides various conflicting cues, the compound bilingual would be more likely to encounter inter-lingual confusions. The point is that the coordinate bilingual would be less dependent on the cues stemming from the language-usage context because of the "built-in" distinctiveness of his two language systems. Future research will examine the validity of such notions as these.

Methods of teaching a second language take into account this matter of inter-lingual interference. For example, the "direct" methods require students to relate a symbol directly with an environmental event rather than indirectly through this association of the equivalent symbol of the first language. The direct method, therefore, is analogous to coordinate training as the indirect method is to compound training. It was at this point we felt it wise to use closely controlled experimental methods to study the comparative merits of direct and indirect methods of training.[43] For this purpose, we followed the tradition of experimental research on verbal learning, as covered in such work as McGeough[44], and Underwood & Schulz.[45] Actually, the problem of direct and indirect methods is an old one and has been examined many times in the early 1900's by psychologists and educators. We improved on their procedures, we believed, and found that the direct method was relatively more efficient, at least for vocabulary learning, primarily because the task of associating new language words with referents (the direct procedure) afforded greater distinctiveness of elements to be learned than did the task of associating new language words with their equivalents in the first language. However, in a recent investigation of advanced students of a second language studying the language for a concentrated six-week period in a setting that was as "direct" as one could hope for, it was found that those students who kept their two languages functionally separated throughout the course did poorer in their course work than did those who permitted the semantic features of their two languages to interact.[46] Thus this study indicates that students studying under a direct method utilize the semantic features of both their languages and permit the two to interact and that this tendency toward linguistic interdependency apparently assists students in acquiring their second language. This finding may well prompt further research on the question of direct methods of training.

A current study is examining the merits of learning two languages concurrently from an early age, in contrast to learning one language well before the second is attempted, i.e., learning two languages consecutively.[47] This problem is often faced by educators and parents who fear that confusion will accompany the early introduction of a second language before competence is developed in the first. Lack of information on this point makes most parents cautious and children are often kept away from a second language until, inadvertently, it may be too late to learn it well. Our approach in this study is to approximate the real-life situation using artificial languages and restricting ourselves to the vocabulary acquisition phase of the process. The study will be completed during the year.

Finally, we have examined the question of the intellectual deficit which is supposed to plague bilinguals. Many studies in the educational and psychological literature have concluded that bilingual children show a lower average score on tests of intelligence when compared with monolingual children who are supposedly matched on all pertinent characteristics except bilingual experience. The findings are not convincing when one surveys the total range of studies undertaken. Miss Elizabeth Peal and I carried out a large study on this question last year with ten-year olds in Montreal.[48] We attempted to match very carefully the students who finally were categorized on bilingual or monolingual. For example, we painstakingly checked on the socio-economic background of the two groups of students and made sure the bilinguals were really competent in both languages. Our results clearly show that the bilingual students are far superior to monolinguals on both verbal and nonverbal tests of intelligence. We concluded that the bilinguals may have an advantage in tests requiring "cognitive flexibility" due, perhaps, to their being bilingual. Miss Peal is presently examining this possibility more carefully. Because our results are in conflict with so many others on this point (although we have no doubt at all about the differences in intelligence just mentioned) we are not yet sure that this bilingual advantage is peculiar to bilinguals in Canada or to those who are actually "good" bilinguals. Our confidence in the generalizability of these findings for different settings will depend on more careful re-examinations in those settings where a bilingual deficit has been reported in the literature.

McGill is but one of the centers studying bilingualism. The extremely important work of Susan Ervin at Berkeley would be of particular value to language teachers.[49] Her intriguing analysis of personality and value changes taking place when bilinguals switch from one language context to another makes evident the important role second-language learning can have in the lives of students.

Concluding Statement

This paper presents certain points of view and research strategies used by psychologists in their study of language. The writing of the paper is a response to a request by those responsible for a graduate program of study for future trainers and administrators of high school and college teachers of foreign languages who feel that the training can be enriched by an introduction to the psychological approaches to language behavior. What is presented here is a personal selection of various psychological schemes of analysis which I feel should be of both instructive and practical value for language specialists. My approach has been to explain how different branches of psychology view language and go about an investigation of it. An attempt has been made to introduce the central ideas of several approaches in a non-technical manner so that non-psychologists might be tempted to go to the original works which are given in the references. I consider the interest of those requesting this material as a compliment to the field of psychology. At the same time, it is difficult to evaluate the interest and needs of language specialists of the sort being trained at the University of Washington, and then to select and expose certain appropriate psychological schemes. This attempt will have been worthwhile if language specialists are enticed to make way in their crowded program for reading and thinking about psychological approaches to language.

Footnotes

[1] A work paper prepared for a Seminar on Language Teacher Training, initiated by the Department of Romance Languages and Literature of the University of Washington, and held at the University of Washington, September 1962.

[2] See O. H. Mowrer, *Learning theory and the symbolic processes*. New York: Wiley, 1960, Chaps. 3 & 4.

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[15] The word "could" is used here because the cell assembly is not a verified entity; it is a theoretical construction. Neurophysiology has not yet advanced to the point where on-going processes can be precisely studied and defined. Hebb has used evidence of a *static* sort, such as histological diagrams of interconnected nerve cells and end bulbs, and hypothesized about active states of nervous integration, keeping his theory in line with the facts known about active states derived from external manifestations of brain activity, such as electro-encephalographic recordings.

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CULTURAL ANTHROPOLOGY AND THE TRAINING OF TEACHERS OF FOREIGN LANGUAGES

Morris E. Opler

Language is so constant and so familiar a part of man's world that its importance and, indeed, its very presence is often overlooked. Curiously enough, this oversight is reflected as much in literature as it is in education. Not long ago I consulted a standard book of quotations to see what the most famous philosophers and writers had to say about man. I found that in striking phrases they had pictured man as a social animal, as a political animal, as a military animal, and as a reasoning animal. But, as I suspected would be the case, I did not find, in this collection at least, any reference to man as a speaking animal. Yet we are quite sure that social and political forms, military strategy, and intellectual inquiry could not have developed in the absence of speech and language. What needs to be kept in mind, apparently, is that culture and language are anciently and intimately related. We have reason to think that articulate speech was the first aspect of culture to appear and that it was the precondition for most of the other elements of man's culture.

I have used the words "culture" and "language" rather freely, and perhaps I should make more explicit what I mean by them. Most cultural anthropologists, though they may phrase it variously, think of a culture as an associated set of ideas, practices, and possessions--nonbiological or superorganic in nature and perpetuated by instruction and learning--which can be identified with a given body of people during a determinate span of time. Language, as I conceive it, is a system of arbitrary symbols, vocal or derived from speech, by means of which human beings, in dealing with others of their kind, facilitate or interpret cultural activities. If this definition or conception of language is meaningful and reasonably accurate, it suggests that speech passing between two persons who are not culturally linked either by early training or by understandings cultivated later is not language in its full dimension but noise that resembles language. Mechanical articulation without cultural community is not the substance of language but its shadow. Let me illustrate this with an example.

One can teach a student Hindi, the national language of India, to the point where he can read or understand narratives, proverbs, and sayings which point to a special and warm relationship between a north Indian girl and her brother. The full meaning of this in context is more than a translation problem, however, for the context is a complicated social one. At marriage the girl customarily leaves her parental home and village to join a husband she has never seen before the nuptials and to live in the dwelling place of his father. Her relations with her spouse and with the adult males of his village are prevailingly formal. Her movements are much more restricted after marriage than they were previously, and she has much more arduous work obligations. One solace of the girl in this anxious period of transition is that she expects to be invited back to visit the family she has left, and this will occur with dispatch if these relatives receive word that she is lonesome, unhappy, or mistreated. In the concern for the girl's welfare, the brother traditionally takes a leading part, especially at the death of or in the absence of the parents. It is he who customarily inherits the property (though recent legislation recognizes the inheritance rights of females), but there is an understanding that his home will be open to his sister and that she must not be allowed to suffer want. The brother thus becomes a symbol of protection, affection, and respite from drudgery for the girl. She carries on ritual to insure his well-being and longevity. From wherever she is, she sends him an armlet to wear on a certain day of the year as a token of their bond. There are many other behavioral extensions of the central motif, and Indian literature abounds in allusions to it. Without an appreciation of the basic conception from which the acts and utterances stem, what Indians say or write about the brother-sister tie may seem puzzling, absurd, or oversentimental to an outsider regardless of his linguistic skills.

But if one thinks in terms of a girl of comparatively tender years who must make a place for herself among strangers and who is trying to maintain a tie with the past and a channel to possible succor for the future, the phrasing will seem much more reasonable and appropriate. The sister-brother bond is only one of many special behavior patterns between kin. And kinship is only one of scores of aspects of Indian life with meanings that require some probing and some effort at comprehension. Unless cultural understanding keeps pace with linguistic attainment, the blind spots and gaps are sure to rob references of their fire and felicity.

Of course, in seeking to become familiar with a culture, and especially with its subtleties and nuances, the utterances of the carriers of the culture can be of great assistance. For language is one of man's most versatile accomplishments. It is a part of culture and is also a medium for the expression of cultural understandings of the widest variety. It follows its own course, and yet it is the crossroads where much of the rest of culture constantly meets. The complete explanation of the Indian sister-brother relationship may not be conveyed by the stories and proverbs encountered in speech and ordinary reading, but it is evident from them that the relationship has special significance. It is always possible, then, to watch behavior and to make further inquiries, and in this way to provide a setting that will enrich and illuminate the usual linguistic materials.

The fact of the matter is that if we are interested in determining what any group of people feel or intend, we must constantly move back and forth between language and other forms of communication. For all cultural behavior, not alone linguistic behavior, is highly symbolic communication whereby man conveys his wants, resolves, beliefs, pleasures, dislikes, and fears. It is not always possible, efficient, or most satisfactory to put what is meant or felt into words. No doubt that is why we have music, the dance, painting, gestures, ritual, and eloquent silences.

I remember an occasion when I was tempted to accept an American Indian rite as a "sun ceremony." The principal evidence was a song in which Sun was beseeched to confer a blessing upon the person for whom the exercises were being carried out. I dismissed the idea that this was a sun ceremony when I came to understand that by the use of certain substances, articles of clothing, and ritual gestures the central figure of the rite was also being placed under the protection of supernaturals other than the sun. A song may command more attention than some substance which is quietly laid by the fire pit; still, it may symbolize no more. Vocalization is not an infallible guarantee of significance.

On the other hand, it will not do to suppose that motor activity alone can be a safe guide to what is happening in a culture. I once arrived at an

American Indian encampment just as a major rite of the tribe was to be enacted. The event had never been adequately described in the literature, and I had no time to discuss it in advance with members of the group. There was nothing to do but observe what I could and record what I could. The results of my effort were rather sad. I did not always discern what was meaningful in the welter of activity around me. My notes, which I have kept as an object lesson to myself, are a compound of the important and the trivial, the meaningful and the extraneous. It was not until I talked over the purpose and practice of the ceremony at length with Indian friends that I understood what I had missed and what I had overwritten. Only after following up the verbal cues of my Indian informants as I watched the rite on subsequent occasions was I satisfied that I fully understood what was unfolding before me. The student of culture who does not submit his observations and impressions to discussion will spread both misapprehension and fact with an even hand.

If what I have said thus far is anywhere near the mark, language and the literary products of language cannot be studied apart from the rest of culture without loss and aridity. A culture speaks in many ways. The architecture of a people says something about them. So do their social organization and their political forms. Much of this enters speech and literature, of course. But one must be conversant with these nonlinguistic aspects of the culture to appreciate fully the references in speech and literature to them, and one must be sensitive to what is said and written about these institutions to gauge their place and the trends in regard to them. Once we leave biology and the infra-human level of physical drive and tropism, we enter a cultural world through which we are led by subtle and varied symbols. They are symbols that involve color, movement, texture, and much else besides articulate sound. It is a world in which a word can be reinforced or cancelled by a gesture or a smile. We can learn what people literally say from the study of language; we can learn what they really mean only when we add to this the knowledge of the total culture of the speakers. By observation, by prolonged contact with speakers of the language in which he is interested, by travel to their country, by immersion in their literature, by empathy, and through many other informal mechanisms, an individual may and often does attain the cultural sensitivity and perspective which gives his linguistic pursuit a richness and authority it would not otherwise have. There is no one royal road to knowledge and understanding. And it may be that such cultural understanding, slowly and unconsciously attained, has deeper roots and truer perceptions than anything a compressed course of study can confer. But time and opportunity are not always with us in abundance, and often we can sharpen and multiply by design and education what we recognize as beneficial in principle.

I think there is relatively little debate among us concerning the usefulness to the language teacher of knowledge concerning the culture or cultures of the speakers of the language. It is a question of how this background is to be gained, how formal we are to be, whether one subject rather than another will be more useful in attaining the end, and how much of any one subject should be injected into a revised curriculum. I'm sure there are some who would argue that immersion in the literature of a language is the most revealing guide to the culture of which that language is a part, since this literature, written or oral, will act as the vehicle for the expression of the ideals, symbols, hopes, and fears of distinguished spokesmen for the culture, and that therefore all that is needful can be accomplished within a language department itself. We have seen that there is a certain amount of self-deception in such an encapsulated view. Others see the need for the teacher of a language to become acquainted with other subject matter areas, and they have definite ideas about what supplementary subjects should be given priority in any specific program. I note that Professor Hilton, in the abstract of his work paper for this seminar, suggests that Spanish studies should have closest ties with political science. I have the impression that when we are in a state of tension with a country or area, we hasten to study its political institutions, and that when we are on particularly easy terms with a region, we are inclined to give greater attention to its philosophy and religion. In planning educational programs, we cannot ignore the pressures of the moment, but we need not be circumscribed by them, either.

It is always somewhat embarrassing for the representative of one discipline to assure busy people in another field that they need his subject and, indeed, that they would do well to master a certain amount of it. This is an embarrassment, incidentally, which cultural anthropologists do not often enjoy in dealing with language teachers. It is much more usual for the cultural anthropologist to struggle along in the classes of the language teacher, trying to learn enough of a language to venture into the field. The inadequacies of the anthropologist and the forbearance of the language instructors in this context are so well known that it may seem presumptuous to attempt to turn the tables. But if there is a tendency for the language teacher to include the materials of other subjects in his crowded curriculum, he cannot very well ignore cultural anthropology, a parallel inquiry which also focuses on areas and peoples outside our own immediate tradition.

What courses or emphases in cultural anthropology are likely to be most appropriate and useful for the language teacher? I would venture to say that a general course in cultural anthropology, one with a heavy comparative accent, would be rather basic. It is well for the student of language to know the range of variation in man's economic, social, political, and aesthetic forms, for it is the satisfactions, dissatisfactions, and compromises with these that color man's discourse and spearhead his literature. One can never really feel the edge of one culture until he can compare it with the contours of others. One can never gauge the stature of a culture unless one knows the cultural possibilities man has explored. It is cultural anthropology, with its interest in both generalization and comparison, which shows us how common human experience receives its unique impress in the cultural mold. The study of language can capture, appreciate, and document the endless variety of art and emotion with which the common journey of mankind is described.

Another course in cultural anthropology which I think might be of considerable value to a prospective language teacher would be ethnographic in character, a detailed study of the culture of some particular people or area. The area would not necessarily have to be that of the language in which the student will specialize. It might even be better if this were not so. I assume that the student of a language will do other course work or reading which will acquaint him with the history and background of the country of the language he is to teach. This is something to which anthropology can perhaps contribute, but, as I see it, it is not anthropology's prime task in this program. The main intention of the ethnographic approach would be to stir, in a setting contrastive enough with the familiar to make an impact, a consciousness of all the variety and all the detail that go to make a total cultural round. For these elements of culture--these artifacts, beliefs, and institutions--are the raw materials of language; it is these that men endlessly discuss, mediate, approve, defy, and reinterpret. This kind of a course gives a sense of the lubricating function of language in culture as nothing else can. Thus, I look less to anthropology to provide information to language teachers about the one specific area in which they are involved than to create a habit of mind which can be freely applied to any culture and any language interest.

The third kind of course in cultural anthropology which I would hope those preparing to become teachers of foreign languages could sample is one primarily concerned with consequential or activating ideas in culture. In the last three decades anthropologists have increasingly addressed themselves to the nuclei around which cultural material tends to form. Ruth Benedict called such large conceptions "dominant drives," Clyde Kluckhohn named them "values," and I have referred to them as "themes." Still other terms have been used. In some cases the differential employment of a term is related to some twist of meaning. For instance, I use the term "theme" rather than "value" because I wish to avoid any implication of ethical judgment of the postulates I identify as themes. My concern is in identifying what is significant and dynamic in a culture and not what is most edifying. At present there are not too many courses devoted wholly to the implications of concepts such as themes and values. But courses and seminars in anthropological theory give more time than they formerly did to such matters, and courses such as "primitive religion" or "comparative religion" now more often make the large, underlying conceptions, rather than the ritual detail, the heart of the inquiry. One still has to probe to learn where and by whom courses in anthropology with this kind of an orientation are taught, but when they exist, they should, in my opinion, be encouraged and patronized.

The comparative approach tells us how a culture, or an aspect of a culture, resembles or differs from others. The ethnographic approach gives a sense of the richness and complexity of a culture. The themal approach reduces a culture to its essence.

A further merit of the themal inquiry is that it introduces cultural materials much more as they are felt and experienced in the process of living. For the purpose of analysis, the data of culture have been divided into such segments as economy, religion, education, social organization, and government. But we carry with us convictions that override these compartments. In American culture, for example, we have a strong sense of the importance and value of time. We are expected to be at our jobs on time, to be at church at the appointed hour, to be in our seats at the theatre when the curtain goes up, to remember the birthdays and anniversaries of our close relatives, and to pay our federal taxes by midnight of a fateful day. The theme of the importance of time has many extensions, and they are little affected by the lines we have drawn around aspects of culture. In fact, the strength and importance of a theme can be estimated in part by the manner in which it penetrates all areas of the culture; the fact that it cannot be confined to one sector of a way of life may be accepted as an indication of its vitality and dynamism.

Perhaps the nature of the concept can be better illustrated by reference to one of the themes of the culture of a village of north India in which I directed research. The theme I have in mind may be phrased as follows: "Males transcend females in importance and prestige." The extensions or projections of this theme into belief and behavior are many and varied, and only a few of them can be mentioned here.

For one thing, the paternal line is emphasized in reckoning kin and even in the worship of ancestors. Males have traditionally inherited the land and family property, and even now, despite recent legislation granting a share of the estate to females, the customary usage still prevails. Residence after marriage is patrilocal; a woman moves to her husband's village and home when she is wed. In fact, she is henceforth considered a member of her husband's family and is subject to its authority. Marriage choices are guided by a rule of hypergamy that favors men; the women come from social units lower in the subcaste hierarchy than those of their mates. There is a double standard in regard to matters of sex, marriage, and remarriage that works to the advantage of the male. Women are expected to remain virgins until marriage; there is less concern about the purity of men. Sexual delinquency of women after marriage is severely punished; men are not held to such stringent standards in this respect. The movements of women, particularly women of high caste whose labor is not required in the fields, are greatly restricted by the purdah system after marriage; the mobility of men is not affected by the nuptial state. There is a strong feeling, especially among high castes, against the marriage of widows, but it is considered normal for a widower, unless he is well advanced in years, to remarry. Women are represented in proverbs, ancient codes of law, traditional narratives, and local talk as weak, lustful, petty, and requiring constant supervision. Family difficulties, such as the disruption of the joint family, are usually attributed to their inability to share household tasks amicably. It may be mentioned that the disease godlings and the supernaturals accountable for disasters of all kinds are usually thought of as female. Needless to say, a family is represented on all formal occasions by males. The greater concern for the male begins even before birth. There is a rite to insure male offspring but no comparable rite to aid in obtaining a daughter. If a son is born, the woman who is to cut the umbilical cord has a much more impressive escort and receives twice the reward for her services than is the case if the infant is a daughter. There are joyous celebrations at the birth of a boy; the arrival of a girl is received soberly. In fact, until rather recently female infanticide was sometimes practiced by one of the highest castes in the social scale. Even now there is a considerable differential between the amount that families are willing to spend on medicine and medical care for sick boys and sick girls. The partiality is conspicuous in educational matters, too. The resources of the family available for education are mainly reserved for the use of the boys. The sacred thread ceremony, denoting a "second birth" through education, is carried out among high castes for males only. There are several important ceremonies observed by females for the continued health and longevity of males; there are no corresponding rites for the benefit of females. Of course, the cumulative effect of these and other associated usages and of the concomitant attitudes gives the culture of the community and region an unmistakable male orientation.

What has impressed me, as I have sought to follow cultural impulses in this manner, is that no culture of which I can think, regardless of how "complex" it is said to be, harbors an unwieldy number of themes. Anything which is a powerful enough force in culture to be considered a theme is a call to action in a certain direction and exerts an incessant claim upon the flow of energy and emotion. Such channeling of behavior and attitude cannot take place without eliminating alternatives. Cultures committed so completely to certain propositions cannot fly off in all directions. The "complexities" of cultures are largely the proliferation and interweaving of the expressions of themes rather than the multiplication of themes themselves. Particular themes of a given culture are not eternal. They may weaken and ultimately disappear. But they are replaced rather than compounded. It would seem, then, that if they are to be maintained and are to facilitate communication, the main ideological highways of a culture have to be restricted to a reasonable number.

Inevitably themes or values of a culture become the focus for literature and art. Language lingers over them, and symbolism of all kinds arises to express them. Once a student of language is aware of the existence of themes, he has a means not only of conversing with others across linguistic and cultural borders but of understanding the systems of thought and action that determine what we shall say to one another.

RECOMMENDATIONS FOR THE PH.D. PROGRAM IN LANGUAGE TEACHER TRAINING

Irving J. Saltzman

In his chapter on Learning in the 1960 edition of the Encyclopedia of Educational Research, W. K. Estes wrote: "No one will contest the proposition that, in some sense, the psychology of learning is fundamental to education. But even the fullest appreciation of the importance each of these disciplines has for the other is not enough to ensure a harmonious and fruitful interplay between them. As the psychology of learning begins to show signs of maturity, one sees ever more clearly that its relation to education is going to be much more like that of physiology to medicine than like that of medicine to the patient. We find no rational grounds for expecting direct transfer of laboratory findings or direct application of basic psychological theories to problems of the schoolroom. False expectations in this respect by educators can only be a source of perpetual disappointment."[1]

In essential agreement with Estes, in 1959, in his very clearly written and well documented book, THE STUDY OF LANGUAGE, J. B. Carroll wrote: "There is an enormous literature on the problem of second-language teaching. There is a multitude of theories about proper methods of instruction, and a host of special techniques which have been proposed. . .(but) few conclusions can be drawn with confidence. . . No method has emerged as clearly the best method. . . In the last analysis, we are fundamentally ignorant of the psychology of language learning. . . A choice between various teaching methods cannot be made on the basis of any presently available evidence. . ."[2]

It is clear that both Estes and Carroll agree that psychological investigations of learning, although numerous, have not as yet revealed the "right" way to teach students what we wish them to learn--in this particular instance, a second language. But both of these authors clearly reveal that they are confident that there will be a successful outcome to the persistent experimental attacks on the difficult practical problems in the field of learning and teaching. Estes states: "Contributions that can realistically be expected from the science of learning growing out of experimental psychology are (a) a deeper understanding of school learning, and (b) guidance in the planning and conduct of research on school learning."[3] And Carroll writes: "What is needed now is a series of small-scale, carefully controlled educational experiments, in which some of the best minds in linguistics, foreign-language teaching, psychology, education, experimental design, and measurement would be brought to bear on the problem. These experiments should be designed so as to display the effect of a wide range of variables upon the resulting achievement. . . Every effort should be put forth to develop and test hypotheses about the psychological processes involved in the learning of various aspects of language systems."[4]

Obviously not as optimistic about the eventual success of the scientific method, in 1960, in his well written book, LANGUAGE AND LANGUAGE LEARNING, N. Brooks wrote: "We can only conclude that, although science and technology can in many ways offer much needed help to language teaching, the value system and the limited field of scientific interest preclude the possibility of centering the activities of the discipline under discussion within the area bounded by science."[5]

It should be pointed out that Carroll, like Brooks, recognizes that the foreign-language teacher, faced with a classroom full of students impatient to be taught, cannot wait for science to provide clear-cut answers to all of the procedural questions. The teacher has to act now. Carroll, like Brooks, describes his own guess at the present time of the "best" method for teaching command of a foreign language. But where Carroll clearly labels his view a "personal hunch," Brooks does not. Brooks states his opinions, which are certainly sensible and well worth serious consideration, as if they were established facts. It is interesting to note that despite their differences with regard to the role to be played by science in the eventual development of the most efficient procedure for teaching foreign languages, there is remarkable similarity in their recommendations. Carroll, with apologies, says: "If I had to recommend a 'best' method for teaching command of a foreign language as a tool, purely on the basis of personal hunches I would recommend for a first-year's course something like this: The preparation of the verbal content would be guided by linguistic analysis, but the sequencing of the instruction would be along the lines of I. A. Richard's plan. 1. The emphasis on the introduction and use of words in immediately recognizable contexts as provided by concrete objects, pantomimic actions of the instruction, film strips, etc. 2. The extreme care which appears to have been taken in the grading of the material for difficulty and in presenting it in proper order. 3. The extensive use of audio-visual materials which are intimately tied in with the content of the instruction.) The initial presentation of the material in each lesson would also be conducted somewhat in Richard's manner, auditory aids supplying the voice of a native speaker to be imitated and visual aids supplying meaningful contexts. Then, however, features from the Cornell and Georgetown plans would be utilized. Native informants would take over to conduct drill in linguistic patterns and information from linguistic science would be employed to describe the characteristics of the new linguistic habits which have to be formed. Further drill by students working alone would be provided for by a language laboratory equipped with tape-recording machines. After phonetic patterns have been learned, recourse would again be had to film strips for additional semantic reinforcement. Results of psycholinguistic investigations would guide the exact sequencing of imitation and reinforcement processes."[6]

Brooks, with great confidence, on the other hand, states categorically: "The learner's activities may be briefly summarized as follows: he is to hear only authentic foreign speech, he is to hear much more than he speaks, he is to speak only on the basis of what he has heard, he is to read only what has been spoken, he is to write only what he has read and he is to analyze--if he does so at all--only what he has heard, spoken, read, written and learned. What the learner must not do may be summarized as follows: (a) he must not speak English, (b) he must not learn lists of English-foreign language equivalents, (c) and he must not translate from the foreign language into English."[7]

The writer is not sympathetic with Brooks' outlook with regard to the limitations of scientific investigations of language learning and teaching. Instead he shares the more hopeful view of Estes and Carroll that the problems which have so successfully resisted experimental analysis thus far will yield shortly to continuing and intensified research efforts. Particularly encouraging, the writer believes, is the work being done in order to program foreign languages for self-instructional purposes. A good self-instructional course, if and when such a course can be developed, will eliminate one of the greatest obstacles to obtaining clear-cut results in experiments on second-language learning, viz., the teacher and the variability which he introduces into the learning situation. The outcome of this research may require a complete reorganization of the teacher-student roles and relationships.

The contribution of the discipline of Psychology to the training of teachers of language teachers, in the writer's opinion, should be the following: 1. To provide the teachers with the skills necessary to read scientific literature critically so that they can make reasonably sound judgments about the practical value of the research on language learning that is reported in the scientific journals. They should be made competent to judge whether or not a particular experimental finding merits consideration for possible use in the classroom. 2. To provide the teachers with the skills necessary to design, carry out and write up studies of the factors which affect the speed and efficiency of second-language learning.

Clearly, the contribution of Psychology is seen primarily as one of methodology, not as one of content or subject matter. Unfortunately, there is very little at the present time that the psychologist can pass on concerning the learning of second languages.

In order to accomplish this objective it seems advisable that the teacher be requested to take course work in the following areas:

1. Advanced General Psychology. In this course our future teacher will become familiar with the approach of the psychologist to his task of understanding behavior. He will discover the kinds of problems that the psychologist has found relatively easy to attack and has already studied extensively; he will discover, also, the many different kinds of problems that the psychologist has not been able to attack successfully thus far. He will learn some of the esoteric language of the psychologist; he will learn how the psychologist subdivides the field of psychology and the kinds of problems which are peculiar to each of the subdivisions. This course is necessary as a prerequisite to the more advanced courses listed below.

2. Statistical Methods. In this course our teacher will become familiar with some of the common descriptive statistical techniques, with some of the common tests of significance, and with some of the simple correlational methods. It is not necessary that our teacher become a statistical wizard, but he must know why statistical tests are necessary, how to handle and interpret some of the common tests, and how to read a textbook in statistics for additional help when it is necessary.

3. Human Learning and Retention. In this course our teacher will learn facts and principles of human motor and verbal learning. He will learn about transfer of training, interference phenomena and forgetting, and about the relationships between learning and motivation, fatigue, personality, intelligence and other personal and social factors. He will discover that in spite of the great amount of research already done in this area, most of the questions that he would like to have answered have not yet been tackled.

4. Tests and Measurements. In this course our teacher will be introduced to the principles of psychological testing. He will learn the language of the tester and he will learn how to construct and, more important, how to evaluate the many different kinds of tests that are used to assess and predict behavior.

5. Laboratory Methods and the Design of Experiments. In this course our teacher will learn how to conduct a laboratory research project. He will be required to do two or three experiments using a different experimental design with each one. He will be expected to apply the appropriate statistical tests to his data and he will have to write up each experiment as if for publication in a psychological journal. Although he will have some freedom in the selection of his problems, he will be expected to choose problems in the area of language learning and retention.

It should be pointed out that it is not an oversight that a course in "The Psychology of Language" or "Psycholinguistics" is not included in the above listing. It is the writer's opinion that the topics usually included in such a course are either (1) not important for the purposes being considered here, (2) already adequately treated in the courses listed above, or (3) better taught in other departments, e.g., Linguistics. Such courses, in the opinion of the writer, are primarily for the student of Psychology who wishes to learn something about languages, and not for language teachers who wish to learn something about Psychology.

As a summary statement, it can be said that the objective of the psychology courses is to help in the development of an individual who will be just as likely to use his research time to conduct a laboratory investigation of the effects of some variable on learning efficiency as he would be to do library research of a literary or linguistic nature.

FOOTNOTES

1. Estes, W. K., Encyclopedia of Educational Research, 1960, Macmillan, p. 752.

2. Carroll, J. B., The Study of Language, 1959, Harvard University Press, p. 186-187.

3. Estes, p. 752.

4. Carroll, p. 187.

5. Brooks, N., Language and Language Learning, 1960, Harcourt, Brace, p. 172-173.

6. Carroll, p. 189.

7. Brooks, p. 50.

PROGRAMMED LEARNING AND THE TEACHER OF FOREIGN LANGUAGES

Stanley M. Sapon

The field of programmed learning is developing rapidly, and refinements in technique, along with a spread in its application to new subject matters and skills, such as foreign languages, suggest that it will be essential for our language teachers--and teacher trainers--to have not only a thorough knowledge of the principles of programmed learning, but also some experience in the creation and evaluation of programmed learning materials.

If ordinary classroom pedagogy is accepted as requiring of the teacher a blend of art, craft and science, so too does pedagogy via programming. I would offer on the basis of my own experience that given the current "state of the art," we can expect the elements referred to above to appear in the proportions 25°/o science, 25°/o craftsmanship, 25°/o subject matter expertise, and 25°/o art, insight, intuition, etc. From this sort of a breakdown, it can be seen that the first three elements are "teachable" in the ordinary sense of the word, but the fourth, and last, element requires either a careful selection of candidates, or else, hopefully, that the combination of training methods used in teaching the first three elements will enhance the probability that the fourth will develop. My own experience in training programmers lends some support to this possibility.

A job description of a "compleat programmer" makes him sound like a rare individual indeed, but in fact, is not very different from what is required of an ideal classroom teacher. He must first of all have a comfortable and easy control over the skills he sets out to teach. Ideally, or economically, or both, he must have experience in the classroom, teaching his FL to students of a background comparable to those for whom the program is intended. To expand on this point for a moment, what I am concerned with here is the ability to predict the nature and the frequency of "errors" that his target students are likely to make. It is a trite, but none the less true, observation of experienced teachers that they can predict with high accuracy the mistakes that students will make in every section of the text, and in every new point of grammar or phonology that comes up. This may be an engineer's or mechanic's approach to contrastive studies, but the surprising thing is that we have generally contented ourselves with correcting mistakes after they occur, rather than attempting to teach in such a way that these predictable mistakes do not occur.

In my own philosophy of linear programming, at least, the notion of converting "predictable error" to "predictable success" is central to the definition of a program. "Trial and error" learning is something with which we are familiar. . .what I am concerned with is what we can accomplish with "trial and success" learning.

Mention of the phrase "linear programming" in the paragraph above brings up a vitally important point in discussion of "schools" of programming. It is important for us not to be misled by the exaggeration of differences between the so-called "schools." Discussions and investigations of the effects of overt versus covert responses, student review and correction of "errors" etc., do not change the sameness of the approach. . . namely, the shaping of behavior toward some criterion via a technique through which optimum process is determined by student behavior. This in itself could well be accepted as a thumbnail definition of "programming."

This leads us to a crucial discrimination between "programmed learning" and "automated instruction." These two terms are not necessarily equated. Programmed instruction can frequently be automated, but all instructional techniques are not always programmed. Taking the Crowder procedure as a case in point, I do not consider his techniques as programmed instruction . . .but rather as "auto-instructional." About the only point that Crowder's texts have in common with the principles of linear programming is the rapid confirmation of student responses, and even here the similarity is more apparent than real, in that Crowder's answer frames are frequently filled with admonishments, scoldings and such unclassifiable "reinforcements" as "tut!"

The aim here is not to involve us in a comparison of Crowder versus Skinner. . .it is to suggest why it is unsound to consider all approaches to the automation of instructional material under the general rubric of "programming," and to consider fundamentally different rationales as different "schools of programming."

Another vital "skill," "insight," "ability," (?) is that involving the perception of the over-all final performance in terms of small units of behavior. We will have more to say about this later, but it is essential at this point to call attention to something that is rarely observed in FL teachers, and only slightly more frequently in some schools of psychology . . .the practice of behavioral analysis, which can be likened to an atomic view of behavior rather than a molecular one.

And one other requirement. . .far from the last. . .one which is difficult to locate in the curriculum. . .but which must be mentioned. I refer to the fact that programmers need to be made of stern stuff indeed if their egos are to survive. Workers in many disciplines learn to live with the concrete proof of their failure in the laboratory, but this is a burden FL teachers have not had to bear. Some days classes are successful, others not so happy, but there is always the comforting bed of cliches about "American students and FL," "the quality of students gets lower every year," etc. The programmer must accept a priori that it is possible to teach what he sets out to teach. If the results are not as he hoped for, then he must recognize his own inadequacy, and seek for source of his errors. And this even extends to the mystical area of "motivation." If "motivation" is necessary for the student to succeed in a program, then "motivation" too is the programmer's responsibility!

There is every reason to expect that school administrators and teachers will soon be confronted with a bewildering array of machines and teaching programs. The problem of evaluation and choice is certain to be a pressing one. Can this problem be considered analogous to the selection of a text-book? In spite of superficial similarities, the analogy would be misleading. When a teacher chooses a text for use in his class, he is considering a source, or a resource, for himself, and his students, of facts, economically stored information, sample readings, guides for drills, suggestions for exercises, etc. It would be unusual for the teacher to expect the text-book to actually TEACH the students. The actual teaching will be done by the teacher. His job will be facilitated by a variety of aids, ranging from text-book through blackboards, slide projectors, pencils and chalk, but none of these aids can be evaluated independently from the teacher. It is what the teacher does with his assortment of aids that determines whether, and how well, his students perform. For this reason, a teacher looks at a new text with an eye to how he, the teacher, will use it as aid to his teaching. He can overlook areas he feels are weak, knowing that he can compensate such weakness by his own personal attention, and he can, and frequently does, disregard the sequence of chapters, rearranging them in his own preferred order of presentation.

A teaching program is also an aid to the teacher's goals, but the goals are somewhat different from those involved with the use of a text-book, and the aid is different, not only in magnitude, but in kind. A program purports to do a stated amount of actual teaching, and leaves the student with a demonstrable degree of control of either a skill or a body of knowledge. Since this is what the teacher himself seeks to accomplish in his class, he is faced not with the evaluation of a teaching aid, but rather with the evaluation of another teacher and his promises. In this light, it can be seen that a radically different procedure for evaluation of programs is called for.

One of the most prominent problems in the area of testing derives from the fact that the makers of syllabi, the writers of text-books, and the makers of tests are in general agreement as to both the content of FL course-work, and more importantly, the sequence of presentation of items within the over-all content. In spite of the ferment of recent years in "new key" FL teaching, there has been no significant change in the notions of what constitutes a "first year course." The organization of our text-books is, as I am sure many of my colleagues have already observed, much too much "linguistic" and not enough "psychological-pedagogical." Let me pose a concrete example of the difficulty. Tradition and its handmaidens decree that all the simple tenses are to be taught in the first year, but in indicative mood only, and the subjunctive is to be introduced in the second year. We can expect to find current tests for first-year students to include all the simple tenses, but not in the subjunctive. Now it may well happen that a programmatic analysis of the student's native language behavior and that desired in the target language will indicate that the most effective sequence (in terms of exploiting existing behavior and minimizing undesirable response probabilities) leads the programmer to introduce the subjunctive early in the program, and to leave for a later period some of the traditionally "simple" forms. A program that is evaluated on the basis of student performance on tests designed to be compatible with more or less "standard" syllabi is not likely to be appreciated, regardless of how well the student performs on other, not-tested dimensions.

Before leaving this issue, I would like to signal another problem area that makes an easy, "ready-made" evaluation difficult. I refer to a fundamental difference between what is expected of a text-book and what is expected of a program. Even the simplest of our introductory texts approximates a complete description of the target language. If a teacher attempts to carry a class through, let us say, Modern Spanish in one year, he does not expect the student to have learned everything that is presented in the book. His final exam will present only a very small sampling of the total content and it will be further modified by the application of a hierarchy of values.

As a matter of fact, many teachers have found that they can use the same text-book for two or three years. . .each time the student goes through it, he acquires control over more and more of the content. This looseness of expectations permits a thorough coverage "on paper," of an esteemed syllabus. The programmer has no such freedom. An effective program is not designed to have the student repeat the course as many times as it proves necessary for him to demonstrate the desired behavior. . .whatever task the programmer sets for himself must be achieved with a near unanimity by the students. Obviously, if each and every point is considered equally important in the course, and must be learned before continuing through the program, we will find that page for page, programs "cover" less ground than text-books.

Outlining rapidly some areas of subject matter that I would recommend for the training of foreign language teachers and trainers:

1. Psychology. What kind? There will be disagreement, I am sure, but I am happy to provoke it. The principles on which contemporary programming is based are primarily those derived from operant conditioning. Although other theoretical positions are beginning to emerge, one of the most effective techniques available is that of shaping behavior through reinforcement of successive approximations of the desired behavior. The effectiveness of this means of training is dramatic, whether observed in its applications to children or to lower organisms, but for a variety of reasons connected with laboratory work, I would recommend actual experience in the training of lower animals.

This suggestion generally provokes reactions ranging from amusement to furor, but there is a growing body of evidence to support it. Homme and Evans of Teaching Machines Incorporated should be credited with the first use of shaping animal behavior as part of the basic training of their programmers, and I have borrowed from their experience in training programmers at the Britannica Center. The rationale, simply stated, is that the task of teaching a pigeon to peck at a disk, or a rat to press a lever, is a splendid analogous work-sample. In the first place, the programmer must abandon his preconceived notions about "teaching," he is called upon to observe the "natural" repertoire of his "student," he must consider the final criterion performance in terms of initial behavior and plan a sequence of behavioral changes that will lead to criterion, he is forced, by the nature of his student, to do without verbal instructions and admonishments, and finally, the situation does not permit the use of punishment as a "teaching aid."

I was surprised to learn that we wind up with a kind of prognostic test of programmer performance. At least at the extremes of programmer performance, the task seems to discriminate very well. Our best programmers accepted the idea with enthusiasm, demonstrated much patience, and succeeded with their subjects. Our poorest programmers reacted with indignation to the assignment, claiming that the task demeaned their role as teachers, and insisted that they needed no help from dirty animals. Perhaps we have here an indicator of rigidity that augurs poorly for programmers.

2. Linguistics. Although linguistics is considered a separate area, I would like to support one special area of this field that has special relevance for the programming of foreign languages. . .phonetics, both instrumental and articulatory. This impinges also on another area slated for discussion: namely, psycholinguistics, but it must be mentioned as contributing to the background necessary for either creative or evaluative work in the area of programmed learning.

3. Courses in Programming. Courses in programming are at present rarities in the university curriculum, and there is little experience to draw on in establishing syllabi for such courses. In brief terms, two types of course work are needed: one, to provide a theoretical base and a survey of existing approaches, as well as an examination of actual materials; the other, to provide a kind of workshop in the evaluation of a program, and in the construction and testing of student-generated materials.

There is an interesting problem raised by implication in the above paragraph that must be discussed. Parallels and divergences between text-books, programs and classroom teaching have been suggested. No teacher-training program has, to my knowledge, insisted on the candidate's demonstration of successful text-book writing. The norm, rather, has been to require the candidate to demonstrate his ability in the classroom. A program in some ways is a cross between what have frequently been considered unrelated, and certainly not interdependent, skills. To require a candidate to be able to create completely novel material is likely to decimate the ranks of candidates, particularly since my experience and that of others in the search for, and training of, programmers, suggest that the ready-made combination of talents and skills occur in a proportion of less than 1:100 in the population of existing language teachers. Unless this distribution can be significantly changed by new curricula for teacher-training, it seems unlikely that every school will find within its walls the talent necessary to develop its own programmed materials. If this was implied in the preceding paragraphs, so too was implied the suggestion that there is a need to explore means by which every teacher, regardless of the direction of his talents, can learn to exploit fully the role that can be played by a programmed "co-teacher."

One of the topics suggested for discussion in the work-paper was consideration of research problems in the area of programmed learning. There is much research being carried on today in the field, but I find that I am generally dissatisfied with the prevailing purpose of such research. Most investigations nowadays seem to be concerned with the comparative evaluations of different "schools" of programming, e.g., the relative merits of linear vs. branching programs, effectiveness of constructed vs. multiple choice responses, etc. This kind of research, of course, fits in the classical model of pedagogical experimentation, and its design is as easy as its results are nonconclusive. My biggest objection is that it ignores one of the most powerful instruments for learning about behavior. . . language learning in this case. . .that we have yet uncovered. . .the program itself. Admittedly, this is difficult work, since it entails the testing of each hypothesis through the writing of actual programmed material and testing the program. . .and the hypothesis. . .on groups of students. Almost all of the classical "problems" treated in methods courses are amenable to real investigation in this way. I can add to what could prove an endless list of problems in language teaching, one concrete example of an urgent question. . .namely, that relating to optimum amounts of practice. Programmed instruction offers a rare opportunity for full control over student time, coupled with immediately available objective data on student performance. This last notion, perhaps, sums up in the best way the outstanding potential of the technique under discussion. . .it promises to bring the solution of long-standing pedagogical problems in second-language learning under acceptably precise scientific control.

THE CULTURAL CONTEXT FOR LANGUAGE TEACHING

Henry Lee Smith

As I pointed out in my abstract, it is really impossible to separate language from the rest of culture and extremely difficult to put into neat compartments the knowledge of subject matter and of skills necessary to the training of a teacher of teachers of language. Particularly is this true, I feel, in the interrelated areas of linguistics and cultural anthropology. Linguistics can be best viewed as a part of cultural anthropology since language must be seen as the principal system of culture; the *sine qua non* of culture, in fact, the alpha and the omega. For it is language through which all the rest of culture is reflected and transmitted, since all the conscious learning which allows us to become human beings and stamps us as human is mediated through language. Language, however, must itself be learned, and therefore whatever light the psychologist can throw on the problem of learning language--our first language and any subsequent language--is vital and essential. But I feel psychologists can ask relevant questions and questions relevant to the methods and approaches of their discipline only when they themselves are at least acquainted with the anthropologist-linguist's approach, methods and findings.

For the study of language as a structured system, its descriptive analysis on many ascending levels of complexity, the understanding of the necessity of separating language from the rest of culture for the purposes of analysis--all this is essential before problems can be properly stated, let alone handled. The teacher of language is a teacher of culture and, conversely, nothing of value can be imparted about culture in general or about a specific culture unless this is done by and through the understanding of how language *as a system* relates to the rest of culture, also seen as a series of related systems.

The role of the linguist in a team of those concerned with the training of teachers of language teachers is obviously to make sure the students are made aware of what language is and what it isn't. Such misconceptions as those concerning the relationship between systems of language and writing systems, the relationship between the colloquial standard and the literary language, and the various style levels of both of these related forms, is essential and has long been so recognized. The linguist also must work with psychologists concerned with learning in general and with language learning in particular so as to know how best to prepare the pattern practice drills which are essential if Bloomfield's goal of "overlearning" is to be achieved. The linguist also must assist in seeing that the best uses are made of the new audio-lingual laboratories where the student hears himself in relationship to the native speaker. These concerns, I am sure, will be covered in detail in other papers.

It is, however, in the area of meaning as seen by the anthropological linguist that I wish to devote particular attention. Owing to the fact that language occupies the unique position it does, it becomes extremely difficult at one and the same time to see it, first, as a unique cultural system, *sui generis*, with components peculiarly its own, and also as the interrelating system of culture, *par excellence*, which gives it the property of being the principal carrier of messages and the principal mode of human *interaction*, to which we give the label *communication*.

To the native speaker, the really smallest significant component of a linguistic system is what he has learned to call the word. Generally, if he is literate, he thinks of the word as something written down with spaces before or after it. But more important, he thinks of words as "having meaning." This naive intuition is analagous to his conviction that "letters *have* sounds." It is extremely difficult for him to grasp the notion that words do not "have" meaning but that words arranged in various obligatory patterns with other words on several different levels *allow* us to interact and hence to communicate with others who have learned the same language and hence, to some extent at least, must share certain cultural experiences and expectancies in common with us. For language gives to all the other components of culture "a local habitation and a name"--from the most tangible artifact to the most abstruse level of the moral and ethical systems--but is itself both artifactual, in that its components are quite readily analyzed and "handleable," and elusively unfathomable, since its very structure seems in some measure to shape for its speakers, outside of their awareness, the basic foundations of their unspoken attitudes, assumptions, and values--in short, their *weltanschauung* itself.

Thus, the study of language and the understanding basic to the learning of language and to the teaching of language first rests upon the realization that language and culture are learned and shared, patterned and interrelated structures or systems. Language must be seen as a system and as a system that uniquely is the carrier of messages that bear meaning. To realize that an understanding of meaning can come only through knowledge of the *structure* that carries meaning is as important as to realize that a knowledge of the structure of a language can never be arrived at by employing meaning as the avenue of approach.

Examples on two levels may help to clarify. If we define a proper noun as is done in traditional grammar, that is from the direction of meaning, we have some such statement as "it is the name of a particular person, place or thing." This tells us nothing about the nature of *noun*--which has been previously defined as the name of a person, place or thing--nor of how *in the structure* those items labelled as nouns--proper *or* common--behave in relation to other words or other constructions of words. If we "know" the language already, or know a language structurally similar to it, that is if we have already learned to some degree how the linguistic system interrelates to the other systems of the culture, we have a false sense of security as to what is being talked about. But if we think for a moment of the time and effort expended on whether the word "iron" is *by nature* a noun or a verb or whether "*Joe*" in "he's a good Joe" is a proper or common noun, we begin to see the futility of this kind of approach.

If, on the other hand, we first see nouns as a *class* of words that take certain suffixes in contrast, say, to another class of words--the verbs--that take another set of suffixes, and then see that those items called nouns fit into certain patterns of arrangement that are quite different from those the verbs enter into, we are at the threshold of seeing how *in the system of the language* nouns are different from verbs and have a potential of referring to different kinds of events in the culture outside the language which we generally term "the world of experience." Thus in the familiar Indo-European languages, structurally marked nouns refer to relatively enduring events in the extra-linguistic cultural world and verbs refer to relatively transitory events. But to try to get at the structural intricacies that allow meaning to be conveyed by using meaning itself as the principal criterion and avenue of approach obscures the picture of the structure and beclouds the outlines of the problem of meaning.

My second example has to do with the illusion of translation. Firmly imbedded in the thinking of the naive speaker is the notion that language is "a means or vehicle for communication of thoughts and ideas." It is accepted without question that "thoughts and ideas" are somehow universal and that languages are simply commensurate codes that serve to express them. Little attention is devoted to the thought that the structure of "the vehicle" may be one of the principal shapes of what we call thoughts and ideas. Woven into the myth of translation is the myth already mentioned that words "have" meaning, as though they were little receptacles of pure meaning undefiled. For example, since it is known that English "democracy" and Russian "demokratiya" have the same origin and are both nouns, it seems obvious that one translates the other. If, to our surprise we find that Russian demokratiya seems to refer over and over again to various things and events in Russian culture that seem better to be labelled "communism," then we feel that we have been tricked and that the Russians have "subverted the meaning of the word." And to try to get at the differences in meaning between "home," "chez moi," and "foyer" goes far beyond the simple notion of translating between English and French. What is rather required is a real understanding of two different _cultures_ and how the true content of the cultures are reflected and transmitted in two different languages. The possession of language has allowed human beings to develop and be the carriers of culture; thus, the understanding of language and of meaning is the understanding of culture--of culture _in_ language and of language _in_ culture.

II

For the student who is to be the language teacher of the future, it would then follow that a major part of the graduate instruction should be concerned with inculcating a real understanding of what culture is in the anthropological sense so that he can fully understand the nature of the target culture in relation to the culture of the student. Since culture now is to be understood to include language, and language as a system is seen to be both the bricks and mortar of culture, cultural anthropology and linguistics are two essential disciplines in the training of the language teacher. This does not mean that the student should not be extremely proficient in the target language, well versed and conversant in the literature, nor that he should lack training in the psychology of learning or in "skill aspects" of the language laboratory and the latest devices designed to aid and abet soundly based pedagogical techniques. Rather, it is a plea for a basic and fundamental orientation of the graduate preparation in the direction of what may be called _culture as communication_. It suggests that the language teacher of the future must be no less than an interpreter of a way of life who sees the imparting of near native control of a language as the surest avenue toward approaching the goal of real understanding of not only the culture of which the target language is a part, but of the culture that embodies the learner's language as well.

To be more specific, the total structure of language in culture is exhibited--or occurs--as speech. Speech takes place in the setting of the speaker-hearer situation. The language teacher must be made aware not only of the nature and structuring of two languages or linguistic systems seen in contrast, but he must be thoroughly aware of who talks to whom, when and how and who listens when and how. For people always have statuses and occupy roles and the culture governs the ways in which interaction takes place within the numerous structured groups that constitute the society. Such simple things as terms of address, greetings, the prescribed selection of linguistic forms and constructions as being appropriate to certain people under certain circumstances must be thoroughly understood and explored. It is essential for the student to realize that speech as the basis for communication and interaction functions ultimately to produce the totality of a people's literature, in the widest sense--the common everyday talk, the cliches, the sayings, the proverbs, the special speeches the different types of artistic composition (poetry and prose of all types) --all the things that it is customary and proper for people to say, and if they are literate, to write down. Just as important is the fact that the meaning conveyed by speech and all that stems from it is in effect the very blood and bone of the value system and the belief system of the culture.

Now meaning oftentimes resides as much in how things are said within a culturally determined and prescribed context as in what seems to be the message if we look simply at the bare linguistic content. For speech is more than language just as language is more than words. Or, to put it slightly differently, communication as interaction goes on, not only throug language alone, but through other modalities or structured systems. Considerable research needs to be done on the structuring and interrelationship of these extralinguistic systems to each other and to language. For all contribute to the transmission of the message, all contribute to meaning. Language is the most highly structured of these modalities of communication which, taken together, we have called speech, but language exists so to speak in the setting of these others.

The basis for all the modalities lies in the biological or physiological organism of human beings, and can be seen ultimately as being composed of various muscular and neural activities which produce not only the articulations that form speech sounds or the phones of language, but the various systematized events that have been called paralanguage--"tone of voice" phenomena separable from the stress and intonation features that are part of language proper--and the structured use of bodily motion for communication which has been called kinesics. The language teacher must not only be made aware of these phenomena but also of how they differ from one culture to the other. The small amount of time spent on investigating these events to date has indicated that their contribution to the total meaning of the message is of tremendous importance. A facial expression, a shift of stance, a drop in the over-all pitch level, a speeding or slowing of the tempo, a drawling or a clipping of a stretch of language--any or all of these can not only change drastically the "meaning of the words" but can send parallel messages along the coaxial cable of speech which may, in some instances, be far more important in the interaction process than the message being signalled through language. These parts of the total message have been termed "cross-referencing signals," and they serve to transmit, often totally outside of awareness, the image the speaker has of himself in relation to the person spoken to, his recognition of the "true" status of the speaker, his general feelings of security or of anxiety, and his reactions as to how he feels the interaction is progressing.

Since these events are all parts of structured systems of culture they can be learned and they can be taught. The first task is to have the student become aware of their existence and of how essential they are in the transmission of the real meaning--or should we say, meanings--contained in the total message. Enough is now known to make at least a start in bringing these events into the student's awareness through the use of sound films of real, not staged or posed, interactions. This is an area, however, where far more research needs to be done concurrently with the developing of a training program of the kind envisioned here.

So far, then, we have stressed the importance of seeing language as the central modality of communication, but as only the most highly elaborated and structured of several such modalities that, taken together, constitute the phenomena we call speech. We have emphasized that language and speech are analyzable as systems of culture and that culture itself is composed of systematic and structured systems with which language is intricately and inextricably interwoven. We have suggested that communication is interaction between human beings through the structured modalities of speech and that this interaction not only presupposes a common control of the modalities of speech but a sharing in common of cultural assumptions, attitudes, beliefs and expectancies on the part of those endeavoring to communicate. All this, as it has been pointed out, means that the student-teacher must be instructed in depth in the approaches and findings of cultural anthropology and linguistics as the very foundation of his becoming a true interpreter of a way of life. For, as we stated, seen this way the language teacher is primarily concerned with communication and hence with culture, for culture, in a very real sense, is communication.

But we have also said that the continuing concern of the language teacher is to get at meaning, since the message transmitted during interaction is the carrier of meaning, culturally defined. Meaning, we said earlier, can be gotten at only through the understanding of structure, and structure itself must be analyzed separately from the meaning it is used to convey. Meaning resides not in a single morpheme, not in a single word, nor, indeed, in a whole concatenation of sentences. Rather the meaning of the message must be seen as a result of the interplay between several levels of several modalities, the knowledge of whose structure is shared by those in the communication situation. Therefore each modality or system must be analyzed first in terms of its own unique components, paralanguage must be analyzed separately from language and both must be seen as separate systems from, say, the kinship system of the culture. Thus the meaning of a kinship term is the sum total of its occurrences in connection with a "point" or relationship in a kinship system. To confuse the linguistic term with the point in the system is to obscure both the nature of the term and the nature of the system. But ultimately we know language can and does carry meaning, can and does convey a message. The relationship between language as a system and other systems described in terms of their own unique components is the study of what has been termed referential meaning. The study of contrasts--"sames" and "differents"--within a particular system at various levels has been called differential or structural meaning.

III

Now in language itself it is useful to see three main areas or levels of structured strata--those which we can term *phonology* (the study of the sounds of the language), *morphology* (the forms or the basic *shape* of the language), and *semology* (the study of the permitted and prohibited distributions of the forms that ultimately allow language to make *sense*). This basic threefold division is convenient for analytical purposes though actually the analyst is always "looking at" the same thing--a real occurrence of language that has taken place in the real world. His analytical and descriptive statements of the structure of the language under observation are actually statements of different *aspects* of the system that he arranges in ascending orders of complexity. Thus the sounds of the language can never cease to be of concern to him just because he finds them to be, as it were, the atomic building blocks of the entire structure and treats them, for the purposes of analysis, as a system within a larger structure. The forms are built from the sounds and the forms have their own unique patternings and arrangements, but the sounds are always seen within the shapes and the shapes are always seen in patterns of distribution with each other. To put it more specifically, morphology or the shape of language is the basic *substance* of language, the sounds are the *units* that compose the substance, and the permitted and prohibited *distributions* of the substance in systematic patterns is what permits the substance vs. the forms and constructions to carry meaning [see table]. And this threefold structuring is repeated within each area. Thus the basic substance of phonology is the *phone* which in its turn is composed of units which are features of articulation. Certain articulation features do not occur simultaneously or in sequence in specific languages. For instance, in English spirant-stop sequences must be either both voiced or both voiceless: a sequence of voiceless spirant followed by voiced stop cannot occur. The system or pattern level of phonology is *phonemics*, and here again we are interested in seeing prohibition and permissions of occurrence of *classes* of phones.

In morphology, the substance area of the whole of language, the unit level is morphophonemics, and the substance level, morphemics, treats the composition of morphemes and words and their classification in distributional patterns. Thus derivational morphemes are separated from true suffixes (grammatical or paradigmatic "endings") and classes of words are established through the permitted and prohibited occurrences of classes of morphemes.

The system or third level of morphology, *syntax*, has as its basic substance the *phrase*, arrangements of more than one word, and ultimately we handle, on the third level of syntax, the classification of clauses and sentences through indications furnished not only through morphemics but also by phonology, through various patternings of stresses and junctures. Both *immediate* and *principal* constituents are of concern here; immediate constituents being the sixteen intraphrasel relationships such as *prenominal*, (whîte+hóuse, whîte+hòuse), anteverbal (Jôhn+rán), *postverbal* (hît+Bíll), etc., and the four principal constituents being *subject*, *predicator*, *complement* and *adjunct*. (Jôhn$_{\underline{s}}$ hít$_{\underline{p}}$ Bíll$_{\underline{c}}$/hárd$_{\underline{a}}$). There may be two complements or two adjuncts but the fourth constituent whether complement or adjunct, is always separated by a single bar juncture from the preceding third constituent (Jôhn$_{\underline{s}}$ gâve$_{\underline{p}}$ Bíll$_{\underline{c}}$/móney$_{\underline{c}}$) or a generation of pitch occurs on each constituent (Jôhn$_{\underline{s}}$ gâve$_{\underline{p}}$ ^{2}Bĭll$_{\underline{c}}$ ^{3}mŏney$_{\underline{c}}^{1}$#, Jôhn$_{\underline{s}}$ hít$_{\underline{p}}$ ^{2}Bíll$_{\underline{c}}$ ^{3}hárd$_{\underline{a}}^{1}$#)

PHONOLOGY α
(Units)

I Articulations (units)			II Phonetics (substance)			III Phonemics (patterns)		
1	2	3	1	2	3	1	2	3
Articulatory Bases	Articulation features	Distribution Patterning of Articulation features	Kinds of Phones	Phones	Distribution of Phonemes in patterns	Kinds of Phonemes	Phonemic Inventory	Distribution of Phonemes in Patterns

MORPHOLOGY β
(Substance)

I Morphophonemics			II Morphemics			III Syntax		
1	2	3	1	2	3	1	2	3
Kinds of Morphophonemics	"common core"	Patterning of Moo in distribution	Kinds of Mo's (suffixes, prebases, postbases, superfixes, etc.)	Morphemes	Classification of morphemes and words through order and occurrence of morpheme with morpheme (morphemic parts of speech)	"Syntags" Syntactic "parts of speech," phrase superfixes, terminal junctures	Phrases Immediate Constituents and principal constituents	Clauses and sentences and their classification

SEMOLOGY γ
(Distributions)

I Sememics			II "Phemics"			III "Rhemics"		
1	2	3	1	2	3	1	2	3
Parts of Speech	Collocations and colligations	Classification of nouns (mass, count, common, proper, etc.) verb phrases (tense, mode, aspect, voice, etc. transitive, intransitive), gender, number, agreement). Classification of collocations (nonverb phrases) (partitive, indef., def., dual, etc.)	Indicators (intonation patterns) etc., and concatenators	Types of occurrences	Classification of Functions and of Sentences (vocative, appositive, actor, agent, instrument, etc.) and statements, questions, conditions, etc.)	"Equivalators" (including shifts of pitch, change of word order; selection of allophones and phonemes, etc.)	Equivalences	Style

This is not the place to go into a complete statement or demonstration of all the rules of syntactic analysis but suffice it to say that the procedure is essentially *binary* with clear-cut indications both from morphemics and phonology as to where and how each binary cut is made and how each relationship and constituent is determined. Of extreme importance are the indications furnished by stress and juncture patternings--the sixteen phrase superfixes--and the *ranking* of words and phrases hierarchically, with the verb, because of its greater number of inflectional suffixes, ranked as the word class heading all the others. The minor terminal juncture--single bar, /|/--and the major terminals--double cross, /#/, and double bar, /||/--also furnish basic indications of constituent relationship. For instance, syntactic subjects may be separated from predicators by *any* of the four junctures (Jôhn$_{\underline{s}}$ rán$_{\underline{p}}$, Jôhn$_{\underline{s}}$ / rán$_{\underline{p}}$, ^{2}Jôhn$_{\underline{s}}$^{2}#^{3}rân$_{\underline{p}}^{1}$, ^{3}Jôhn$_{\underline{s}}$^{2}//^{3}rán$_{\underline{p}}^{1}$), but syntactic complements, only by /+/ or /|/. To exemplify in "He$_{\underline{s}}$^{2} knéw$_{\underline{p}}$^{2} |(when I$_{\underline{s}}$ got there)$_{\underline{pc}}$ the clause introduced by *when* is the syntactic complement, but in "He$_{\underline{s}}$ ^{3}knéw$_{\underline{p}}$^{2}#(when I got there)$_{\underline{a}}$" the clause is an adjunct. This difference in putting clauses together, signalled by the phonology, thus makes for a difference in assignment of clause as constituent and, ultimately for a difference in referential meaning. ("He knew the time of my arrival" *vs*. "He knew *after* my arrival" or "as a result of my arrival.")

In *semology*, which as a whole is a system of pattern level, permitted and prohibited distributions of what has been analyzed on the preceding levels--always a principal entry point at the substance level is the semological *occurrence*, a stretch of linguistic material that, for English, is bounded by a terminal juncture. For instance a stretch ending in /|/, is an *incomplete* occurrence, one ending in /#/ or /||/ is complete. A stretch ending in pitch one and #, /^{1}#/, is a *final*, *terminated*, occurrence but any complete occurrence ending with any other pitch and juncture is *unterminated* and *nonfinal*. (When nothing follows such an occurrence it is termed *ultimate* and if a stretch ending like it precedes it, that one is termed *penultimate*.)

Now the stretches that have been analyzed in phonology and morphology are final, terminated occurrences or stretches so ending as to be classified as ultimate occurrences. It is the task of the analyst at the level of semology to take the occurrences that have previously been broken down and analyzed through syntactic clauses and syntactic sentences with their constituents and "look at" them again from the aspect which might be called "distribution classification." At the first level of semology, the substance is a relatively short stretch, an ultimate occurrence including no more than one incomplete occurrence. These stretches may be *complete syntactic sentences* (containing syntactic subject and predicator), *incomplete syntactic sentences* (lacking a syntactic subject), or *syntactic nonsentence* (lacking a syntactic predicator). Syntactic nonsentences are termed *semological collocations* (good+boy, by+thĕ+séa), and complete or incomplete syntactic sentences seen at this level are termed *colligations*. Such a stretch as "will+hăve+bèen+bèing+lóved" is a colligation (a syntactic incomplete sentence) as is the complete syntactic sentence, "he'll+vĕ+bèen+bèing+lóved."

At the first stage of the first level of semology (ΣI.1), the various semological parts of speech are treated as classes. The various *allosemes* of these *sememes* are noted as, for example, in the case of the semological *adjective*, which has as allosemes all the items that in syntax can appear in prenominal relationship--morphemic adjunctives like *fast* or *white*, morphemic personal pronouns in the possessive case (*my*, *his*), syntactic *articles* (*the*, *a*, *an*), syntactic "D-words" *like*, *all*, *both*, *some*, *any*, etc.

Agreement is a concern for semology I and at the third stage (ΣI.3) we begin by converting the morpheme √-Z^1 into the *plural number* and the morpheme √-D^1 into the *past tense*, etc. In the stretch "The men were here" we have the traditional agreement between syntactic subject and verbal predicator and in such contrasting distributions as "The book|that I saw," "The boy|that I saw," "The boy|who(m) I saw" but never "The book|who(m) I saw" we have the basis for two *gender* classifications for semological nouns--*personal* and *impersonal*.

Further, semological nouns can be classified at ΣI.3 by how they can appear in distributions with certain of the "D-words" and articles. For instance, we can say "ă bóok," "ă bóy," "ă wíne," but not "ă Jóhn," unless we add an adnominal clause--"ă|Jóhn I knéw." The article "the" operates in the same manner but may be followed by nouns in both singular and plural which is not the case with "a," "an." Now if we label the collocations described as *indefinite singular* and *definite singular* and *definite plural*, respectively, we see we have a "hole" in the pattern for *indefinite plural*. Turning now to the "D-word" some, we find its occurrence with nouns in collocations is dependent upon whether weak stress or secondary or primary stress falls on it. Thus "sŏme+wíne," "sŏme+wínes," "sŏme+bóoks," "sŏme+bóys" all occur, but not "sŏme+bóok," "sŏme+bóy" and "sŏme+Jóhn." However, "sŏme+bóy" and "sŏme+bóys," "sŏme+wíne," "sŏme+wínes" all occur. "Wine," and nouns like it, may occur with "mûch" preceding, but this is not the case with nouns like "book," "boy" and "John." "Mâny" can precede all of the kinds of nouns under consideration but only if they are in the plural.

Just such a rapid look at distribution permissions and prohibitions allows us to classify nouns like "wine" in one class and nouns like "book" and "boy" in another class, for which we can use the familiar terms *mass* and *count*, respectively. Nouns like "John" are count nouns, but because of further contrasts in distribution within collocations and colligations, they can be classified separately as *proper* nouns. ("A picture of John'(s) but not "a picture of book" or "boy.") Further, we can classify such collocations as "sŏme+wíne" as the *indefinite partitive*, which we will say has no plural. This allows us to say that "sŏme+wines" and "sŏme+bóoks" fills the "hole" left in the pattern for the *indefinite plural* collocation.

It must be noted that the labels suggested--"mass," "count," "proper," etc.,--are chosen purely because they are quite familiar; they are *not* based on referential meaning criteria. It is the classification of nouns *through distribution* which *must precede* our noting that mass nouns are those that refer to "unspatialized events" in the world of experience and that count nouns can refer to handleable, tangible persons or artifacts.

In a similar way colligations may also be classified. Once we have established the two tenses--past and nonpast--through the morphemic suffix √-D^1, we can now see what restrictions are placed on auxiliary and main verb occurrences. Thus the modal auxiliaries must always be followed by the *name form* of the verb (wìll+*gó*, wòuld+*gó*), the verb "be" by the "-ing form" or the past participle, "have" by only the past participle. These distributional criteria form the basis for the classification of the colligations and we can call the first of these the *modes*, the second two the *durative aspect* and *resultative-passive voice* respectively, and the last, the *perfect phase*. Each colligation, of course, can be in either past or nonpast *tense*. Combinations of these can be handled in order so that [([wîll+hăve)+bèen]+bèing)+lóved] is classified as "the non-past tense of the 'will' mode, perfect durative, resultative-passive of the verb 'love'."

Returning now to the level designated ΣII, we are faced with looking at larger stretches than those we have limited ourselves to in Σ I. The problem of converting the principal syntactic constituents into semological functions is one of our major concerns. We remember that in syntax we could have two complements; now we will automatically convert the first into the semological *first*, or *indirect* object, and the second to semological *object* (or *direct object*, if you prefer). We realize that the syntactic subject, too, has more than one semological function. For example, the syntactic subject of a verb in the *active* is structurally different from the syntactic subject of a verb in the *resultative passive*. We suggest the term Σ *actor* for the syntactic subject of verbs in the active voice and Σ*patient* to designate the semological function of verbs in the resultative-passive voice. The syntactic phrase introduced by the preposition "by" will be labeled the Σ *agent* if the noun is personal, and Σ *instrument* if the noun is nonpersonal.

In assigning semological functions to syntactic constituents, both pitch and terminal junctures are among the most important *indicators*. In the examples given below, where the predicator is in the resultative-passive, it will be seen that a minor juncture (/+/, /|/) always precedes the *indirect object*, while a major juncture (/#/, /||/) always precedes the Σ object. (The syntactic constituents are written above the line, and note that the Σindirect objects of sentences whose predicators are in the resultative passive are *not* syntactic complements, because they are always preceded by major junctures and syntactic complements are always preceded by junctures.

1. John$^{\underline{s}}$ (Σ actor) gave$^{\underline{p}}$ (Σ predicator) Bill$^{\underline{c}}$ (Σ ind. obj.) money$^{\underline{c}}$ (Σ obj.)
2. The binder$^{\underline{s}}$ (Σ actor) gave$^{\underline{p}}$ (Σ pred.) the book$^{\underline{c}}$ (Σ ind. obj.) | a cover$^{\underline{c}}$ (Σ obj.)
3. Indiana$^{\underline{s}}$ (Σ act.) gave$^{\underline{p}}$ (Σ pred.) Chicago$^{\underline{c}}$ (Σ ind. obj.) Gary$^{\underline{c}}$ (Σ obj.)
4. Bill$^{\underline{s}}$ (Σ patient)# was given$^{\underline{p}}$ (Σ pred) | money$^{\underline{c}}$ |(Σ obj.)# by John (Σ agent)
5. Money$^{\underline{s}}$ (Σ patient)# was given$^{\underline{p}}$ (Σ pred.)# Bill (Σ ind. obj.)# by John (Σ agent)
6. The book$^{\underline{s}}$(Σ pat.)# was given$^{\underline{p}}$ (Σ pred.) | a cover$^{\underline{c}}$ (Σ obj.) #by the binder (Σ agent)
7. A cover$^{\underline{s}}$ (Σ pat.)# was given$^{\underline{p}}$ (Σ pred.) # the book (Σ ind. obj.)# by the binder (Σ agent)

8. Chicago$^{\underline{s}}$ (Σ pat.)# was given$^{\underline{p}}$ (Σ pred.) | Gary$^{\underline{c}}$ (Σ obj.)#
by Indiana (Σ inst.)
9. Gary$^{\underline{s}}$ (Σ pat.)# was given$^{\underline{p}}$ (Σ pred.)# Chicago (Σ ind. obj.)
# by Indiana (Σ inst.)

The so-called "object complement" in such sentences as "John made Bill #*captain*," and "They elected him #*president*," is always preceded by a major juncture and consequently is *not* a syntactic complement but a syntactic nominal *attachment*. It, therefore, can be immediately converted into the semological function of object complement and the nominal or pronominal preceding it, which is syntactic complement, will be, of course, the semological object.

Both terminal junctures *and* pitches are used as indicators of some semological functions, for instance in distinguishing between semological *vocatives*, *appositives* and *expletives*. In the first two sentences below, the syntactic nominal *insertion*, *John*, is appositive when the pitches of the syntactic subject are *repeated* as it is uttered, but semological *vocative* when said with 2 2.

1. ^{2}The ^{3}kíng^{2}# ^{3}Jóhn (Σ app.)# is déad.
2. ^{2}The ^{3}kíng^{2}# ^{2}Jóhn^{2} (Σ voc.) || is déad.

In distinguishing between a semological *expletive* and, say, a semological *locative*, an inserted expletive always is said on pitch one and, if an expletive is final, it is said on pitch one and can only be preceded by /|/. The locative, however, is never said on pitch one and may be preceded by either /|/ or a major juncture.

1. ^{2}I got a ^{3}séat^{2}|^{1}*by* ^{1}Júpiter^{1} || (Σ expletive).
2. a) I got a ^{3}séat^{2}#^{2}*by* ^{3}Júpiter^{1}# (Σ locative).
   b) I got a ^{2}séat^{2}|^{2}*by* ^{3}Júpiter^{1}# (Σ locative).
3. ^{3}Jóhn^{2}#^{1}to be ^{1}súre^{1} || could have gone (Σ expletive).
4. ^{3}Jóhn^{2}#^{2}to be ^{3}súre^{2} # could have gone (Σ appositive).

There are probably some thirty-five or more semological functions with numerous subdivisions in some of the classes. By no means have all been yet ascertained even for English, and much research needs to be done in the area of semology II.3. But in Σ II.3 we also classify semological sentences--statements, questions, conditions, commands, etc. Just to give an indication of the criteria for the classification of sentences at this level let us take just two examples. The "inverted order" of syntactic subject and auxiliary verb is one of the indications of a semological question but never if the auxiliary is said with secondary stress. For instance, /(*mây hĕ*) g*ó*/ is quite different from /(mày hĕ) g*ó*/, irrespective of the intonation pattern. The first is an "exhortation," the second a question. It is in the conditions, however, that the technique of "classification by distribution" is best exemplified. The classification of "real" vs. "unreal" or "contrary to fact" conditions has always been arrived at through meaning criteria, and hence people often argue as to whether a certain instance of a conditional sentence is "really contrary to fact." If we look at our data, we can deduce that there are two kinds of conditional sentences statable in terms of contrasting distributions of semological tense, mode and mood. Class B conditions are typically those that show in one clause--the one generally introduced by "if"--the past tense of the perfect phase of the verb and in the other clause the past tense of the perfect phase of a mode. For example:

1. If I had gone # he would have left.
2. Had I gone # he might have stayed.

though the past tense of the subjunctive mood of the verb "be"--were--can be followed in the second clause by only the past tense of the simple mode.

3. If I were you # I would leave.

but 4. If I had been you # I would have left.

All other conditions are "class A" and may be subdivided in various ways. Class B conditions are obviously those we traditionally call "contrary to fact" or "unreal," but, again, we have gone from structure to meaning and not the other way around.

In semology III, the substance is what we may call equivalences and the system or third level is occupied with classifying various equivalences as to styles. Here considerations from all previous levels are again taken into account, from the selection of allophones and phonemes through the selection of morphemes, lexical items, and constructions, up to and including the selection of voice, mood, mode, function and class of semological sentence. Here we determine, among other things, the differences of emphasis occurring in different but equivalent sentences and classify the ways in which emphasis can be achieved--pitch shift, putch rise, word order, substitution of / # / for / | / where possible, etc. Here we also classify the various style levels--colloquial vs. literary, poetic diction vs. prose, etc.

Ultimately, we come up with a rigprously objective set of structural criteria for classifying style and then, and only then, do we have a basis for evaluating style. If we have done our description properly we can then safely lay down our prescription. The language teacher is and should be a prescriptivist, but his prescriptions must be based on objective structural descriptions. He must himself be able to correlate certain styles as non-standard, others as standard formal colloquial, and still others as standard informal colloquial. He must be able to assess and evaluate regional style variations and know how the educated people react to style variations. In other words, he must find out what differences in style mean in terms of other things in the culture.

To sum up and to conclude, the language teacher needs much from many disciplines, but our contention is that he needs descriptive linguistics and cultural anthropological knowledge and insights as the foundation for all his other concerns and activities. He must be instructed in the best way to make the transition from the language as a system to the rest of th culture--from microlinguistics to metalinguistics. He must realize that t do this he must know the structure of two languages but far more he must know a great deal about two cultures, anthropologically speaking. He must see meaning as culture in language and language in culture, he must see culture as communication, and he must realize that there is at hand for him the basis for a new and proud professionalism.

SEMINAR REPORTS

THE CONTRIBUTION OF PSYCHOLOGY TO THE LANGUAGE AND LANGUAGE LEARNING PROGRAM

Arthur L. Blumenthal

There were two papers (Lambert, Saltzman) presented to this seminar which pointed out how certain areas of psychology may contribute to the Language and Language Learning program. There was no attempt to define a specific area termed "psychology of language" in either paper. Saltzman specifically dismissed the possibility of such an area or course because the topics would be treated in other specialized courses. However, the sentiment of most seminar participants along with the testimony of students now in the program reflected a strong endorsement of such a course as "psychology of language" or "psycholinguistics." Some students reported that this course was the only factor which kept them from dropping out of the current program. The reason is that such a course brings together otherwise unrelated parts of a general language program (linguistics, psychology, anthropology, etc.). A psychology of language course has the potential of giving structure to the total area of the study of language. For example, such a course can show how ideas and research in one of the above areas influences thinking in other areas. (e.g., the Whorfian hypothesis stimulating laboratory experiments in perception, or the knowledge of descriptive linguistics applied to the description of types of aphasia, etc.)

A very brief statement could be put forth in an attempt to define more specifically the area of psychology of language: the essential characteristic of language is that it carries information and this may occur in many forms (speech is one). Psychologists don't insist on the primacy of speech in their definition of language, and they are, as well, more willing to give attention to paralanguage and kinesics (a problem which occurred during this seminar in some other contexts). Psychologists may in general hold to the view that language serves two functions (Roger Brown, 1957). These are, (1) a means of communication (inter-individual behavior control) and (2) a means of symbolizing and structuring the world for the individual (intra-individual). There may be a tendency for some points of view to show little interest in the latter conceptual and perceptual processes. Of importance here is the fact that linguistic forms and referents are categories or concepts. Our concern is with how these are learned and how they function. Such categorizing behavior varies widely from one language community to another. Because of this second function of language it must be noted that language learning should involve a great deal of cognitive socialization for the individual.

Discussion of Lambert's paper:

In Lambert's work paper a large emphasis was placed upon the growing popularity of neurophysiological speculations in psychology and on the fact that this tendency might "give substance" to psychology. However, it may be questioned whether this development in psychology is of immediate relevance to a program for training specialists in language. Certainly a study of the physiology of the vocal organs is a necessary element in the program, but neurophysiology might be an unnecessary burden unless it is referred to in such a way as to help explain and dramatize psychological phenomena.

A general area which might be termed "psycho-semantics" could be especial interest to the program. Lambert presented several examples of research. In particular the semantic differential developed by Osgood may be cited. It seems wise that students in the L. & L. L. program be able to evaluate critically research of this type. The following critique was presented to the seminar (Blumenthal): The semantic differential is based on the intercorrelations of responses to many bipolar adjective dimensions. These were then simplified by the statistical technique of factor analysis to yield a few statistical factors which would account for most of the variance present in the correlation data. The factors are considered to represent basic and independent variables of meaning and can be represented graphically as dimensions in a geometrical space. The criticism was then made that a small difference between two adjectives in terms of "semantic space" may be very important for signaling differences in meaning. A poet (or scientist) may make very important distinctions on the basis of slight differences in semantic space. There seems no reason to say that differences in meaning are defined by equal distances in Osgood's semantic space. Thus the criticism is that the functional aspect of meaning may be overlooked.

Another interesting line of semantics research is Lambert's work on "semantic satiation." Several demonstrations show that the mere repetition of a word results in the tendency for that word to function more like a nonsense sequence, that is, repetition is accompanied by a loss of meaning. It would be well to prepare the L. & L. L. specialist to understand this kind of phenomena in view of the frequent use of mere repetition in language teaching.

Lambert discussed stimulus generalization as the means through which meaning develops. In this regard perhaps such research as that done by Razran on semantic generalization should have been included to illustrate that generalization is not restricted to a primary stimulus dimension. In this case it occurs along an abstract "semantic dimension." (This research also shows distinct differences between children and adults in semantic generalization.)

In referring to aptitude and abilities assessment Lambert points out an area of psychology which should be a crucial part of this program. The area may be better labelled as the study of individual differences. Since traditional S-R approaches are based on the nonspecific "organism" (rat, monkey, dog, etc.) individual difference phenomena sometimes get overlooked in psychological theorizing. But it may be of critical importance in the classroom. The fact is that there may be a wide range of ways of acquiring knowledge and abilities. Individuals may vary to much greater extremes than is often suspected on dimensions that are relevant for language learning. (e.g., from "word blindness" to "eidetic imagery.") We can agree that training in psychometrics is important for the L. & L. L. specialist including the objective of the specialist doing his own original research.

Lambert's discussion of social psychology topics (ethnocentrism, "anomie," minority group responses) might best have been included in the anthropology section since psychology is already becoming somewhat top-heavy. The same could be done with the bilingualism topic except for the unique contribution to the psychology of cognitive processes from the study of coordinate and compound bilingualism.

Comments on Saltzman's paper:

Saltzman shows the importance of distinguishing between applied psychology and theoretical psychology. Little is known about many practical learning situations. Perhaps more attention should be paid to specialists in the department of education since as Saltzman points out the restricted stimulus materials and laboratory environment of the theoretical psychologist often do not provide results that are generalizable to practical situations. There is a future for the research oriented L. & L. L. candidate.

Saltzman discusses programmed learning devices. These are cited as the most promising thing for our getting clear-cut results in experiments on second language learning for they eliminate the teacher and thereby all the variability he introduces in the learning situation. It seems reasonable that the more we restrict the stimulus situation the more likely we are to get results. But the orientation of the seminar has been more toward the analysis of the other variability rather than the artificial elimination of it. Programmed learning is a special area in its own right and is covered elsewhere in the seminar reports.

It was not possible for the seminar to cover all the topics in psychology relevant to language learning. Two such areas are: (1) the study of the transfer of training (how does the learning of concept a today influence the learning of concept b tomorrow). (2) The study of learning sets (or techniques which may be termed learning how to learn).

PROGRAMMED LEARNING

Victor E. Hanzeli

The Promise

The seminar on the training of specialists in language and language learning heard and discussed two workpapers on programmed learning with special emphasis on programming for foreign languages. It was recognized, considering the rapid development of this field, its increasing technical refinement, and its recent spread to foreign languages, that language specialists should not only acquaint themselves with the principles of programmed learning, but also acquire some experience in the creation and evaluation of programmed learning materials.

Prima-facie evidence of the promise of programmed learning is impressive. Its theoretical mainspring, B. F. Skinner's analytical model of behavior, is enjoying wide, although not unanimous, acceptance among psychologists of learning. The programmer's insistence on defining the learner's terminal behavior and his dedication to leading the learner through discrete "optimal" steps towards this behavior bring the analytical mind to bear simultaneously on both the specific subject matter and the appropriate learning process. The superiority of this approach to the usual lip service paid to "stating the aims" and "grading" or "sequencing the learnings" seems obvious.

In the field of foreign languages, the programmer's notion of "shaping" behavior is particularly germane and auspicious. The technique deriving from this notion is "operant conditioning," i.e., designing and applying a schedule of reinforcements which, drawing on existing patterns of behavior, leads to new patterns of behavior. In the most sophisticated programs this technique translates, into a pedagogical process, the "contrasive analysis" structural linguists have long believed to be essential for the improvement of learning and teaching of second languages. Actually, as Stanley M. Sapon of the University of Rochester pointed out, the programmer must superimpose, over the linguist's contrastive analysis, a "contrastive behavioral analysis" in order to arrive at optimal learning units and sequences.

The greatest innovation programming has brought to the technology of learning and teaching is the teacher's (programmer's) potentially "absolute control over student behavior" throughout the entire learning process. One might also examine the "reverse" control the learner exercises over the programmer's behavior by responding correctly or failing to do so, as he proceeds from one frame to the next during the program's developmental stage.[1]

The Limitations

Despite its promises, programming, one of the five areas of endeavor which had been selected for discussion in the seminar, clearly emerged as subordinate to all the others and, more specifically, as ancillary to psychology and linguistics.

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[1] In his recent but unpublished paper, John A. Barlow of Emory University included the student's control in his concept of "validation" of lessons.

As John B. Carroll of Harvard University pointed out in his work-paper, "most of the 'solid experimental evidence' [in programmed learning] has accumulated in the field of animal learning; extrapolation to the case of the educated human being has been liberal." Major procedural controversies are still unresolved: "linear" vs. the various nonlinear techniques, "constructed" vs. multiple choice responses, etc. Until they are resolved to general satisfaction the value of programming as a source of new knowledge will remain open to question.

Sapon is confident that "almost all the classical 'problems' treated in methods courses are amenable to real investigation" by validating "each hypothesis through the writing of actual programmed learning materials and testing the program . . . and the hypothesis . . . on groups of students." According to the "state of the art today" one must, however, realize that several "schools" of programming are included under the term "program." To test any hypothesis by programming to the satisfaction of all, one would have to "drive" the hypothesis through several kinds of programs. Such a procedure is liable to degenerate into the kind of point-of-application research which, to quote Sapon, "is as easy as its results are nonconclusive." Indeed, any point-of-application research in this area is singularly unconvincing, because it must compare master teachers ("25 per cent science, 25 per cent art, insight, intuition," etc.) with each other or with essentially average classroom teachers.

By the same token, it is also questionable whether the various "schools" of programming will be able to contribute proof to the theory of learning from which they derive or to disprove competing theories and assumptions.[2]

The Training Program

Contribution to the improvement of the learning process is not necessarily a "contribution to knowledge." "Solid experimental evidence" necessary to resolve the many unanswered questions in the field of language learning will have to come from basic research in psychology and linguistics. It is therefore reasonable to subordinate, in the training of specialists in language and language learning, work in programming to studies in linguistics and psychology. Subordinate as this work may be, it must include both some learning about the assumptions and techniques of programming and first-hand experience with programmed learning. For the latter, the trainee should learn various subjects by means of programs available in his field and design small programs under the supervision of a specialist.

Research

Programming offers also a potential field of concentration and research for the specialists in language and language learning. Judging by the discussion at the seminar, learners' aptitudes and motivation and their relations to the rate of learning and degree of retention of programmed materials are areas of eminent interest where little information is yet available.

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[2] Another limitation of programmed learning is the difficulty and cost of developing satisfactory programs.

Applied studies need to be devoted to the question of the classroom teacher's rôle in programmed instruction. Without subscribing a priori either to the pessimistic ("the machine will displace the teacher") or the optimistic ("the machine will liberate the teacher for more creative activities") oversimplifications, specialists in language teaching will have to conduct detailed feasibility studies as to how the "co-teacher's" and the "machine's" rôles may be combined in the total educational process. Ways must be found in which programs are adapted to the rest of the educational situation and not only the other way around.[3]

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[3] The program's and the "co-teacher's" relation may be especially problematic in foreign languages, as Carroll points out in his paper. Carroll does not rule out the possibility of programmed learning proving to be overly efficient in foreign languages, producing "students with perfect native accents, startling fluency in speaking, high proficiency in reading and writing, and decided empathy for a foreign culture." He wonders whether our educational system would be "able to absorb such students," or that they would be as acceptable in a foreigh country as "if they exhibited a suitably non-native accent."

THE STUDY OF LINGUISTICS WITHIN THE PROGRAM

William H. Jacobsen, Jr.

The seminar reached a general consensus concerning the utility and appropriateness of linguistics as an important part of the interdisciplinary program in Language and Language Learning. However, this agreement applied to linguistics as broadly conceived, not as limited to some of the latter-day structuralist schools. And not all branches of linguistics fared equally well.[1]

Rationale

Three main areas of justification for, or expected benefit from, the study of linguistics by participants in this program appear to have emerged in the discussions.

1. A primary benefit that was widely approved is a negative one: the removal or correction of undesirable attitudes concerning language. Both Bolinger and Ferguson mention a period of unlearning or attitude formation as a preliminary step in the study of linguistics. On a more advanced level, sophistication in linguistics is desirable to help curb a widespread tendency to appeal to linguistics as a sanction for one or another policy or practice concerning which the field does not really render a judgment, usually because two or more opposing viewpoints are recognized as in some sense valid within linguistics, so that evidence from another discipline (such as psychology) is necessary for making practical decisions. It is important to realize that linguists often wear several hats, and have been known to make pronouncements on language teaching that are not based on anything shown by their properly linguistic research. In this connection, the presentation by Bolinger of some claims of the audio-lingual method that are not actually backed up by linguistics met with widespread approval. One can, however, go even further along these lines than the workpapers, and point out that some of their attitudinal recommendations will not stand being pushed too far. Take Ferguson's first point that the linguist "regards language as human behavior." This is appropriate in the sense intended--that neophytes can be induced to do much more in the way of observing for themselves than they are encouraged to by traditional education--but it is out of tune with much of modern linguistics, which tends more and more to operate with abstract structures that are felt to be manifested only in an indirect fashion in overt behavior.[2] Or Ferguson's third point regarding the notion of the primacy of speech. This, again, is something that it is appropriated to emphasize to beginners, since it is so strongly contrary to the values of conventional schooling, but it is true only historically, in the history both of individuals and of the race, and, usually, psychologically, but not necessarily in a descriptive sense, if one accepts a dichotomy such as Hjelmslev's of form and substance.[3] What is important is a clear distinction between speech and writing, rather than a valuation of one over the other. Another widespread notion of the same sort would have it that linguistics has shown that paradigms are wrong. Actually linguistics recognizes that there is a paradigmatic relationship as well as a syntagmatic one in languages (although the former is a broader concept than the traditional paradigm), and that both must be somehow

covered in a complete description.[4] Substitution drills, after all, are nothing more than a generalized type of paradigm.

The workpapers mention a number of topics concerning which there are prevalent misconceptions that should be corrected by a course in linguistics. One broad goal of such a course should be the one discussed under Ferguson's second point: the instilling of an impartial and objective view of languages; that is, learning to observe but not share the values about language held by a community. This is closely connected to the problem of normative grammar in the classroom which is discussed more fully by Bolinger, since the norms to be taught should be arrived at objectively and not by uncritical acceptance of popular opinions. Related to this category is the considerable discussion that took place of the fact that not all forms or styles of a language are correct in all situations, and of a commonly held misconception to the contrary. Other widespread misconceptions about more technical subjects mentioned in the workpapers include: inadequate views of the structure of language, epitomized by Bolinger's "languages are words put together to form sentences"; what Smith calls the "illusion of translation" or Bolinger characterizes as the "fallacy of equivalent codes"; and faulty notions of the relationship between language and logic.

2. A second main reason for including linguistics in the program is that this discipline affords a frame of reference for conceptualizing and communicating the complicated facts of languages. Even though many of the topics brought forward in the seminar concerning which research is needed were not in straight linguistics, this field usually entered as one of those involved. Control of structural linguistics might help to avoid, for example, the choice of inappropriate or insufficiently well defined linguistic units for research in psycholinguistics, or the premature introduction of psychological criteria for linguistic units into research projects designed to uncover psychological correlates of such units.

In this connection I can do no better than to quote the excellent statement that was presented by Professor Hanzeli at a juncture in the discussions when he seemed to feel that the unique contribution of linguistics had been slighted in favor of the other fields represented or of hyphenated fields:

"The unique contribution of linguistics to the learning of languages is that it provides the learner with a grammar of the spoken language: it alone describes the grammatical forms as they occur in speech, and states the rules by which these forms are combined. 'Traditional' or 'non-linguistic' grammar, with its graphemic orientation, not only creates a pedagogically undesirable ambiguity between the primary (speech) and the secondary (writing) symbol systems, it also misrepresents in fact the functional units which underlie speech behavior.

"Furthermore, linguistics has refined and substantiated the traditional pedagogical technique of contrasting, from sound to syntax, the learner's native language with the target language. It has contributed, thereby, to the improvement of learning sequences and provided an analytical framework for conducting experimentation in language learning."

3. Opinion in the seminar was more divided on the third main reason for the inclusion of linguistics in the program. This concerns the extent to which it is appropriate and feasible to develop an ability to intellectualize about language in the students who will ultimately be influenced by those participating in the program. Clearly, the more value one gives to this goal, the more linguistics one must instill in the candidates in the program, so that enough will trickle down to the lower levels. Of course, this general problem is not limited to the field of linguistics. It is paralleled by similar questions of how much knowledge of literature or of culture one wishes to present to high school students or college undergraduates along with their language learning.

Content

The practical question of the extent to which it might be possible to organize special courses in linguistics for the students in this program was not seriously considered by the seminar. The concrete recommendations for curriculum that emerged were largely couched in terms of courses already existing at the University of Washington, as far as linguistics is concerned, although the discussion concerning the relative merits of the various branches of linguistics generally did not distinguish between policies that would be implemented by choosing between courses, as opposed to those that would be carried out by choosing among topics in organizing a specific course or courses--this in spite of the fact that much of the discussion in the workpapers on linguistics was organized around the latter approach. Therefore this report will discuss only relative valuations of fields within linguistics without trying to segregate them into courses.

The seminar discussions turned up a basic disagreement on the rôle of diachronic linguistics in the program, as opposed to agreement on the value of synchronic linguistics. This question is related to that discussed under the third type of rationale above, since most agreed that historical linguistics is a field of unusual interest and importance in itself, and questioned merely its relevance to the improvement of language teaching. However, since it is unlikely that the typical candidate in the program would have undertaken any previous study whatsoever of the history of a language, whether his native language or the target language, agreement was reached on the desirability of at least a minimum of such study "so he won't pick it up in the street." If only a minimum amount of such study is possible, it should be concentrated on the major language that the candidate is preparing to teach.

On the other hand, there was general agreement about the closely related field of dialect geography, as this is more directly concerned with problems of the form of a given language that should be taught. Bolinger's suggestion of pointing out dialect differences within a class as a way of "showing differences in a context of similarity" met with widespread approval. The present writer can himself attest to the heightened degree of incredulity and interest that is aroused in a beginning class in phonetics and phonemics by the demonstration of certain well-known dialectally-varying features of American English, such as initial *hw-* vs. *w-*, presence or lack of (Trager-Smith) postvocalic *h*, or differing functional loads of the barred-*i*/schwa contrast.

Agreement was present on giving the highest priority to the presentation of the structural hierarchy of language. A subsidiary question arose of whether one should stick primarily to one model of language structure and try to develop in the students a facility for operating within that model, or whether one should continually contrast the approaches of different "schools" of linguistics--what Haugen has felicitously called "distinct metalinguistic speech communities"[5]--so as to convey some of the ferment and excitement in the field at the present time. This writer would tend to align himself with those holding the former viewpoint, because of the danger otherwise of merely confusing the less advanced student and giving him the impression that linguists agree less than they really do; he also feels it would be misleading to give the impression that all schools are equally worthy of attention or that they all cover the same ground.[6]

Turning to the branches of descriptive linguistics, we found complete agreement on the importance of articulatory phonetics, contrasted with a division of opinion on the worth of acoustic or instrumental phonetics. The majority feeling seemed to be that anything beyond an elementary knowledge of the latter branch and its associated techniques might be reserved for those students who plan to undertake a program of research requiring this.[7]

The consensus on the value of the study of morphology and syntax was so great that these were little discussed. The emphasis of both workpapers on vocabulary was noted and approved, but it was pointed out that the lip-service linguists are starting to pay to the importance of the structural study of the lexicon has not yet given rise to practical efforts in this direction. The study of meaning per se, as recommended by Bolinger, was not discussed, but is probably to be recommended.

A course in linguistic field methods (which was obliquely mentioned by Ferguson) was not felt to be an essential part of the students' training, although the value of some such "shock treatment" exposure to an exotic or previously unstudied language (whether Danish or Oneida) was mentioned several times.[8] A related question brought up by Ferguson's paper has to do with whether it is futile to prescribe the languages from which examples are to be drawn in an elementary course. The writer feels that the broad perspective on variability in language that would be gained by choosing examples from hither and yon is much more important than the stray facts about particular languages that might be conveyed by following such a prescription.[9] On the other hand, it might be worthwhile to explore Professor Hanzeli's suggestion that the linguistics course might be able to draw heavily enough on English for examples to obviate the need for a separate course on English structure.

The question raised by Bolinger as to the relative value of a course in English structure vs. a course contrasting English with the target language was discussed at some length with inconclusive results, although the majority seemed to favor the latter alternative. This writer, however, tends to align himself with the minority viewpoint, as he feels that the practical value of contrastive analysis is currently being overestimated, especially on levels higher than the phonological one.

The rôle of linguistics courses in the target or major language was not extensively discussed, but there seemed to be complete agreement with

Bolinger that as many of these as possible should be included in a candidate's program. But the question of the appropriateness of advanced study of this language of the type that would not usually be called linguistics--study of topics such as composition, stylistics, synonymy, rhetoric, and syntax--is one that revealed a strong difference of opinion within the group. We all know that such courses tend to vary considerably in their content and value, but I personally feel that a systematic, inductive approach to these topics can make them extremely worthwhile.

Research fields

As the topic of fields wherein research is needed to help improve language teaching is one that was much discussed by the seminar, it may not be amiss to give a few brief indications of the thinking along these lines where linguistics entered as a major ingredient.

Most of the need for research that was brought up concerned linguistics combined with some other field rather than linguistics alone. But there is certainly need for a number of sutides that would have to do primarily with the application of linguistic techniques. Some of these might have to do with working out an integrated macrosystem to display to the fullest advantage the relationships of the speech and writing systems of a language for which it is desired to teach ultimately both systems. In this connection I should mention a question that was raised by Professor Saporta: What is implied for language teaching by the insight of linguistics that in describing spoken French the feminine forms of the adjectives, rather than the masculine, should be taken as basic?[10] I would answer that this implies merely that if one wishes to teach only spoken French, without ever progressing to the use of the conventional writing system, then one should have the student memorize the feminine forms of adjectives, but if one wishes to teach ultimately both the spoken and the written forms of this language, this insight is of uncertain value, since the pronunciation of the feminine is typically implied by the spelling of the masculine.[11] Another application of linguistic principles might be in proceeding systematically from records of dialectal features to a normalized form of a language that should be taught for use in certain areas. Yet another field of research might be the sequencing of presentation of items in a language course according to linguistic principles of economy and presupposition. After hearing an explanation by Professor Sapon of behavioral criteria for sequencing the topics in a language-teaching program, this writer gained the strong impression that the same results might have been achieved by purely linguistic study of the language structure involved. Contrastive studies constitute a fertile field for research that is of great scientific interest, whatever may be the practical benefit to be gained from them.

The importance of research in psycholinguistics was brought out. From the disucssions of this field there emerged the strong likelihood that linguistics might help to improve the quality of research therein in at least two ways. On the one hand, linguistic principles should make possible the choice of valid points in the structure of a language for use in experimentation; on the other hand, speculations arising within linguistic circles are apt to suggest fresh variables whose psychological correlates might be investigated.

Many of the topics concerning which more knowledge is sorely needed fall within the province of language and culture or sociolinguistics. Closely related to linguistics proper are the fields of paralanguage and kinesics. As research in these fields is still in its infancy, it is difficult to judge its ultimate practical value. In the meantime a straightforward catalogue of the gestures commonly used by a given speech community might have considerable usefulness.[12] Much discussed was the great need for field work to determine and codify the complicated facts concerning the appropriateness of certain forms of speech in certain situations.[13] This research should properly be carried on in collaboration with a sociologist or anthropologist, who would be able to describe explicitly the social correlates of the forms of language involved. The transition from empirical data concerning the usages of native speakers to recommendations for language teaching is not a simple one, since it is by no means a foregone conclusion that foreigners should want to speak exactly like the natives with whom they will associate.

The remaining hybrid field of language and literature was hardly discussed. The well-known fields of stulistics and synesthesia remain promising in their implications for the more advanced student. A type of stylistic study that is organized more from the point of view of elucidating the resources of a given language at a given period might be more relevant for our purposes than one which is organized around the usages of a certain literary school.

FOOTNOTES

[1] The only strong dissenter from this attitude was Ronald Hilton, who in his workpaper expressed the opinion that linguistics, except for lexicography, has little to offer the student of western languages. This viewpoint did not meet with approval. This writer particularly feels that Hilton's characterization of linguistics' "emphasis on description rather than prescription" is an oversimplification that contrasts unfavorably with, for example, Bolinger's discussion of the problem, which concludes that "linguistics does not prove that normative grammar should be shut out of the classroom."

[2] Cf., for example, R. B. Lees, Language 36.207-211 (1960). This sort of idea is by no means new; one must recall Saussure's dichotomy of langue vs. parole, which may be interpreted in part as a system vs. the behavior to which it gives rise. (Cf. Rulon S. Wells, Word 3.15-18 [1947], Charles F. Hockett, International Journal of American Linguistics 18.97-99 [1952].)

[3] That is to say, the form (of the expression) of a language may be embodied in the substance of writing rather than of configurations of sound waves. Writing may be analyzed into units quite analogous to those found in speech (e.g., grapheme and allograph instead of phoneme and allophone), and these units may be thought of as directly manifesting the morphemes (or content plane) of the language without any intervening level of sound units. Such an analysis is the only appropriate one for certain practical applications, such as handling written languages in computers for translating or other purposes. A definition of language as necessarily being

embodied in vocal symbols can lead to absurdities if pushed to its logical extremes, such as to the conclusion that a written language is not a language. It is also insufficiently abstract for many scientific questions that one would want to pose, such as whether or not the bees have a language. To say immediately that they do not because their messages are conveyed by patterns of dancing rather than by vocal utterances is to close one's eyes to many deeper insights into human language. Cf. Louis Hjelmslev, Prolegomena to a Theory of Language, transl. by Francis J. Whitfield, Indiana University Publications in Anthropology and Linguistics, Memoir 7 of the International Journal of American Linguistics (1953) pp. 66-67. Also Søren Egerod, Romance Philology 15.164 (1961); "The superior quality of speech vis-à-vis writing is a non-sequitur. This kind of argument would tend to make man's utterances inferior to a dinosaur's. Actually, writing has been gaining in importance over a long period and has exerted a tremendous influence on present-day speech forms of most languages. Another medium may conceivably win out in the future; language can remain, quite independently of speech. One of the most advanced forms of language that ever existed, classical written Chinese, reflects no colloquial language and cannot be spoken at all." One may also call attention to F. W. Householder's recent speculations about the possible extent and types of permutations and replacements that can be applied to a language without removing its basic characteristics, as being symptomatic of the trend of much recent thinking in linguistics ("On the Uniqueness of Semantic Mapping," Word 18.173-185 [1962]).

[4] A recent thorough discussion of the advantages and disadvantages of the word and paradigm model of language description is found in R. H. Robins, "In Defence of WP," Transactions of the Philological Society (London), 1959, pp. 116-144. The main theoretical objections to paradigms are that they do not segment words into minimal units (morphemes) and that they tend to disguise the fact that the different words in the paradigm may have different syntactic properties.

[5] Language 36.525 (1960).

[6] Ferguson's workpaper in particular takes the opposite viewpoint.

[7] One notes the parallelism of the reactions to this field and to that of programming--another field which is commonly thought of (perhaps superficially) as being characterized by a certain amount of gadgetry.

[8] Indeed, the writer feels that even for those students who wish to learn to do field work, the value of a course in the subject lies not so much in any specific techniques or tricks that might be presented, as in instilling an attitude of humbleness coupled with fortitude in attacking unfamiliar linguistic structures.

[9] Although on the whole Ferguson is correct in stating that enough material can be drawn from the thirteen languages that he lists to illustrate almost any important point, still, as these languages belong to only four language families, viz., Indo-European, Semitic (Hebrew, Arabic), Sino-Tibetan (Chinese), and Japanese, they naturally fail to exemplify completely

the wide range of linguistic phenomena known to science. For example, on the phonological level, the languages in this sample include none with only one series of stops; none have glottalized or implosive stops, not to mention clicks; and the representation of tonal types is inadequate.

[10] A succinct description of the situation is to be found in Leonard Bloomfield, Language (New York, 1933), p. 217.

[11] A partial description of the differing classifications of French adjectives that emerge depending whether they are based on speech or on writing is found on pp. 51-53 of Fernand Marty, "Language Laboratory Methods and Techniques," pp. 51-57 in Language Teaching Today, ed. by Felix J. Oinas, Publ. 14 of the Indiana University Research Center in Anthropology, Folklore, and Linguistics (1960).

[12] Kinesics should not be equated with the study of gestures, as the former is a much broader field, treating of all visible bodily activity that affects communication. The interested reader may be referred to a paper by Alfred S. Hayes, "Paralanguage and Kinesics: Pedagogical Perspectives," which is to appear in the report of the Interdisciplinary Work-Conference on Paralanguage and Kinesics, which was held on May 17-19, 1962, and sponsored by the Research Center in Anthropology, Folklore, and Linguistics, Indiana University, Bloomington, Indiana.

[13] The latest edition of a well-known English dictionary was strongly castigated for suppressing the indications as to levels of usage that had been present in previous editions, especially because of an impression that seems to have circulated among the public to the effect that this was due to the teachings of modern linguistics.

THE PLACE OF LITERATURE

Abraham C. Keller

I. Rationale

The general question of the justification of the study of literature created little difficulty. By almost tacit agreement, the proposition was accepted that literature has a great deal to offer students on broad humanistic grounds with which members of the panel were well acquainted. The more specific question, Why literature should be studied in this program, engendered considerably more interchange and produced the following considerations and questions:

a. If we seek broad humanistic benefits, why study foreign literatures? Would those benefits not be better attained through study of our own literature? There is, of course, an added dimension if a foreign literature is used, but it may well be doubted that this justifies the extra bother. If that added dimension is defined as an understanding of the foreign culture, literature is not necessarily the most economical way of achieving it.

b. If cultural rapprochement is what is sought, literature is but one of a number of possible avenues. A strong argument can be made for equal or greater efficacy of nonliterary fields, such as painting, music, architecture, history, and sociology, at least some of which even have the advantage of affording the same practice in reading the language that literature offers, and much more besides.

c. Perhaps the best that can be said in defense of the large place of literature in the curriculum is that most students and teachers who are interested in language are also interested in literature, and even those who are exclusively, or almost exclusively, taken up with language still find literature the most obvious, the most beautiful, and the most profound example of language in action. It is something that teachers of language know to some extent at least (which is more than can be said of the painting, architecture, music, or sociology of this or that country. Literature is, as one discussant put it, closer to the medium of communication which students and teachers know than is any other possible field of study in connection with language. It should not contradict the statements made in parts (a) and (b), above, to say that literature does have some value as an aid in cross-cultural understanding, as well as benefits in the broad humanistic sense of leading students to an understanding of important aspects of life and human relationships.

The argument in favor of teaching literature as an art has great force as applied generally to a school or college program. In this particular program, it ought perhaps to be made available in large doses for students who want it; for the rest it ought to play a smaller or larger role according as they want aesthetic or cultural benefits from their study. Everyone would gain if there were good courses dealing with civilization and culture, so that students who want a minimum of literature would not be forced into specialized literature courses where the benefits to them would be slight and where they can only hold back the students who love and want literature.

II. Method

There was general agreement on Miss De la Harpe's assertion that direct contact with literature is superior to study about literature. Literary history was accorded value also, both as an end in itself and, especially, as ancillary to aesthetic ends.

The explication de texte was proposed as a method which respects the text and which makes sober use of allied disciplines and relevant knowledge. Thus, historical perspective, with considerations of biography, movements, etc., and philosophical perspective, with study of the sources of ideas or motifs, are not at all disregarded but rather are integrated with aesthetic appreciation. Objective factors established by history and scholarship join with subjective evaluation and feeling to provide the possibility of a strong but balanced impact of the literary work.

The word "possibility" is important, for there is nothing inevitable here. The explication method must be used with care and patience and with so open a mind that study of the text may lead to surprises and reversals of previous judgments, as well as to revelations of subtle beauties and unsuspected depths.

The explication method--not because of its detailed workings but because of the respect which it inculcates for the text and the rewards which it teaches for close study--sometimes becomes a way of life, or at least of intellectual life, in its followers. The general effect of this, in a time when the mass of information grows beyond our capacity to digest it, can only be salutary.

The explication method is capable of adaptation, and, provided that respect for the text is maintained, that rigid intellectual honesty is observed, and that serious effort is made to understand and appreciate from a number of vantage points, there is no reason why the principles underlying the explication cannot be adapted to a variety of situations and approaches. It can be useful as applied to books as a whole (in contrast to poems and other short pieces), and it can be adapted to class discussion (in contrast to the usual, more formal, mode of presentation).

III. Content

Discussion provided some useful guide-lines, but much work remains to be done in the way of implementation.

Such questions as how much literature should be studied by teacher-trainers, and what the precise nature of the courses should be, were not resolved. If Part II, above, has merit, presumably a course in which students are trained in explication de texte should be in the curriculum. The precise material in that course, naturally, is less important than the method followed.

But what about other courses? It was agreed that literary history has some value. Should all the courses except the one on explication de texte be of the literary-history type? Or should they be historical with an occasional explication thrown in--or what?

On the question of quantity, it seems likely that, in actual practice, the matter will be decided, as in most things, by power and influence. Since men with literary specialities are more numerous and still, usually, in positions of leadership in departments of foreign languages, the amount of literary study required is apt to remain substantial. But it is to be hoped that before very long questions of this nature will be decided on the merits of the claims of the various disciplines. Though discussion showed no unanimity, there was considerable sentiment in favor of reducing the literature content of this program to a point somewhat below the one-half of the total now expected--with, of course, freedom to take more in cases where literature is the student's principal interest. Since students usually have undergraduate majors in one of the literature field, it was thought that this would not unduly deprive them of contact with literature. Moreover, reading lists can be used for filling gaps.

Discussion was more specific and more fruitful in the matter of doctoral dissertations. What constitutes a valid dissertation for the teacher-trainer? Studies which examine and/or compare methods of studying or presenting literature, and detailed plans for new literature courses, were suggested as possibilities but met with small favor in the group. There was considerable discussion--without unanimity or definite conclusions--on the conventional equation of newness with research, it being pointed out, especially by Miss De La Harpe, that the search for newness leads most often to trivia, whereas honest research motivated by felt intellectual needs, whether leading to brand new discoveries or not, might be more promising both as scholarly experiences for the candidates and as genuine contributions to the field. Directors of this program should have the courage to prefer soundness, importance, and scope to the common brand of graduate-school originality.

As a general principle, it is safe to say that there should be encouragement of interdisciplinary theses. The question was raised, and stirred some concern, whether a student can acquire enough competence in fields like psychology and anthropology in the time alotted, to produce a thesis comparable in quality to one in literature. The unorthodox possibility was suggested that two or more students might be permitted to collaborate on a dissertation, each of the students representing a separate discipline. Obstacles of both mechanics and tradition were foreseen but did not daunt members of the group overmuch. It was also suggested that thought be given to the possibility of substituting for one large dissertation several more modest interdisciplinary studies. These would be taken frankly as exercises which might lead the practitioner toward a degree of interdisciplinary competence which cannot reasonably be expected in the pre-doctoral stage. Emphasis on an interdisciplinary approach was unanimous, but specific topics should be left to grow out of the students' interests and work. If this program is to have value, it was felt by the participants, it will have to be by a series of happy marriages--e.g., among psychology, linguistics, anthropology, and literature--and like any other marriages, these had best be left up to the young people who will have to live through them.

THE PLACE AND NATURE OF THE STUDY OF CULTURE

Howard Lee Nostrand

This chapter deals with the question of what the degree candidate needs to know about cultures and the methods for studying them; about the target culture he selects; and about the culture to which he himself belongs. Let us define culture here in the comprehensive sense proposed by Morris Opler at the beginning of his workpaper: "an associated set of ideas, practices, and possessions--nonbiological or superorganic in nature and perpetuated by instruction and learning--which can be identified with a given body of people during a determinate span of time."

Language and literature, both broadly conceived, are considered in other chapters of this report. A huge province remains, however, for the present chapter. It consists chiefly of the arts other than literature; the culture's systems of values, beliefs, and methods; the social, political, and economic systems; and the ecology of the culture, including its agricultural, medical, and industrial technology. Within this province we shall ask what areas are important and how they should be studied, for our purposes as defined in the following discussion of the rationale of the degree program.

Rationale

The most nearly ultimate aims of the program that all the seminar participants have in common are that it should conduce toward individual self-fulfillment and toward a good society, particularly through the avenue of improving cross-cultural communication. These highly abstract purposes lead to relatively concrete objectives for the education which is the end-product of the program. The student should show his education in two ways: first, by his enlightened understanding of a foreign culture, his own culture, and the nature of cultures in general; and second, by his ability to participate as a welcome outsider in the foreign society whose language he has studied. The new importance of this ability, for Americans who travel, study, or work abroad, is the fundamental change in modern life which caused the revolution in our manner of learning modern languages. The needed understanding can be defined as a set of attitudes with supporting knowledge and experience. The ability to participate adds to the attitudes some further knowledge and skills necessary for conforming to the proprieties and amenities of the target culture.

The specialist in language and language learning must presumably possess the enlightened attitudes, together with a deeper knowledge of their derivation, their limitations, and their status in the fabric of human knowledge, than the younger student may be able to grasp. The seminar members tried unsuccessfully to reach agreement on the question of whether this specialist needs also to possess, in at least one foreign language, all the knowledge of specific proprieties and improprieties, together with the habits of conforming, that the student will need for the purpose of hebaving, without a slip of tongue or finger, as a guest in the foreign community. Does the specialist need skill in this sort of performance for the sake of his prestige with those he teaches? Or can he earn his prestige with other abilities?

However these points may be decided, our specialist certainly will have to know the nature of the problems of participating in a foreign society. He must know as well how to bring about in learners the attitudes, knowledge, and skills requisite both for enlightenment and for participation. And he must know how these sorts of educational content can be distilled from what appears as an infinite chaos of cultural phenomena.

But it was questioned whether he should necessarily possess all the skills and applied knowledge the student needs unless he, too, has need for them. It seems axiomatic for this rationale that any educational content not clearly necessary must yield its place to content for which the learner in question may expect to have recurrent need, to the end of his own self-realization and his contribution toward a better world order.

Content

What does the candidate in this program really need to know, then, about culture and about two specific cultures?

Several enlightened attitudes were identified by the seminar. These will probably remain high on the list, even when the list is extended to an optimal completeness:

1. cultural relativism: the overcoming of the tendency to regard the home country's way of doing things as the natural way, and the reverse as "backwards." The ideal is not an absolute relativism but one which recognizes such universal values and disvalues as may be authenticated. Morris Opler cautions against the danger that a sense of cultural relativity can degenerate into opportunism: "We must not come out with a product who will . . . forget standards in order to get along."

2. experimentalism: the general willingness to change one's ideas in the face of evidence; and since the specialist in question will be a professional researcher, a sense of obligation to increase human understanding.

3. "perspectivism": empathic penetration, as far as is possible, into a foreign or a past mentality, coupled with consciously exploiting the advantage of an outsider's perspective.

4. imperturbable understanding of the seamy side of a foreign society, of areas where its aspirations have not been attained. Such understanding must be supported by a knowledge of the pertinent history, and balanced by awareness that change is possible and a moral determination to contribute toward a better world--rather by improving one's home culture than by telling a host of people how to run its affairs.

These tentative formulations can certainly be improved by wider discussion. In the seminar, disagreement remained as to whether specialists in language and language learning should concern themselves with righting wrongs in society, as Ronald Hilton's workpaper suggests, or should concentrate their zeal upon increasing knowledge and improving education in the field of foreign languages and literature.

As the main means toward enlightened understanding of cultures, Morris Opler argued convincingly that "It is well for the student of language to know the range of variation in man's economic, social, political, religious, and aesthetic forms..." He proposes "a general course with a heavy comparative accent." Possibly the mature graduate student could learn at the same time, through an interdepartmental "proseminar," how a sociologist and a social psychologist contribute to the knowledge of cross-cultural variation.

What does our specialist need to know about his target culture and his own culture?

The seminar agreed that the program should include whatever of the target culture is needed for understanding of the language and literature--notably where values, beliefs, or customs give an unexpected meaning to a word, or make a topic in literature momentous and moving for a reason that the outsider can appreciate only when he knows what it evokes out of the native reader's experience of life.

The seminar agreed further that the program should attack the problem of the cultural context more systematically than simply to introduce bits of it in an incidental way. The program should not only draw upon the systematic research efforts of the contributing sciences and humane disciplines; it should also organize systematically the scattered resources; and should develop systematic plans for teaching about a foreign culture at the several age levels. Even those insights or skills that may best be taught indirectly, rather than explicitly, cannot be left to accident if they are important.

Morris Opler suggests two approaches toward an organized conception of a culture. The two approaches might in fact be combined. The one is an extensive ethnographic study of a culture (which he observes need not be the specialist's target culture). The other is a "themal" method, which appears promising for organizing our understanding of modern national cultures. A culture as complex as that of India, for example, seems to be pervaded by some fourteen themes which recur in its ideology, art, and social institutions; and these themes admit of formulation such as to satisfy diverse native critics of the description.

While Morris Opler prefers to build an ethnographic or a thematic description of a culture inductively, to fit a single culture,[1] Henry Lee Smith prefers to build the description deductively, from a universal model. The model he recommends consists of a set of interrelated systems common to all cultures: language, paralanguage, and a kinesic system; a value system, a belief system, and so on, all centering around the communication systems and conceived somewhat by analogy to them. He holds that one "must see culture as communication." ". . . nothing of value," he says, "can be imparted about culture in general or about a specific culture unless this is done by and through the understanding of how language as a system relates to the rest of culture, also seen as a series of related systems." The meaning of an item, in language or in the other systems, can be grasped only by one who sees, or at least feels, the structure in which the item interacts.

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[1] Mr. Opler comments: "I certainly do emphasize induction in arriving at themes. But behind this there is a dependence on general principles, such as that patterning will take place both in the themes and their expressions, and that themes are kept to a modest number to prevent friction. Also I leave room for generalization and consolidation at the highest level, for I see the possibility that certain themes may run through many or most cultures."

The approach from this and other universal models is certainly to be utilized, as well as the ethnographic and thematic techniques. The specialist in language and language learning will need to apply examined, personal experience of the advantages and limitations of each as it applies to his target culture and to the "contrastive analysis" between that culture and his own.

Ronald Hilton gives first priority to an entirely different concern. His plea is for political responsibility and international civic spirit. He urges that those who want to improve cross-cultural communication must be sensitive to the great social needs of the peoples we seek to know. One might try to object that this is of necessity a full-time concern, that it will have to be the full-time occupation of a few. But the objection is not convincing. In all professions, one finds great souls to prove that an active social conscience can be one facet of a specialist's personality, and there seems little doubt that language teachers would accomplish more for cross-cultural understanding and communication if more members of the profession had this interest well developed. It would follow that the degree program under scrutiny should include some study of controversial, current affairs at home and in the country or countries of the target culture, with relation to the professed enlightened attitudes of the program and with responsibility for the candidate to know whatever history is directly relevant.

How much history can be required is a problem of time. Here, as in the supporting disciplines, the program will have to salvage whatever latent, residual knowledge the candidate brings from prior study and experience. Many of the students will bring a knowledge of literary history, which they can expand into the related history of ideas, tastes, and social movements. All of them will have a background of general European and United States history to build upon. One device for salvaging unorganized prior knowledge is the sort of summary used by Wallace Lambert in his workpaper, to present working concepts of two theories of learning.

For most persons in the program, the content that has been suggested will have to suffice. A few may elect, however, to concentrate their efforts in the field of the cultural context, and these will have time to learn and use the research methods available for selecting, defining, organizing and teaching the essential content of a foreign culture.

Methods of Teaching the Cultural Context

A general, comparative course in cultural anthropology seems a desirable part of this degree program, unless the student has already had such an experience. The comparative course, or an informal review of the subject, might be used at the same time to place the learner's native culture in perspective, and to begin formulating a systematic account of the target culture.

A second course seems needed for the ethnography of the target culture. This could include a thematic approach, once scholarship has provided the needed knowledge; and the course might serve at the same time as an introduction to the comparative methods of anthropology, sociology and social psychology.

These two courses, together with prescribed reading and new interdisciplinary seminars, should give time to study all the main aspects of a culture--including those neglected in this report, such as the economic system and the technologies--that bear on the seven or more functions in the teaching profession (see below, page 142) which the seminar wants to see better fulfilled through this new Ph.D. program.

The students in the program will need to know other methods of teaching the cultural context than those by which they have learned it themselves. For elementary-school students, the problem is to impart through activities a vivid and true feeling for "the child's world" in a foreign culture. For high-school students the problem is to give a more mature view, likewise incidentally, for the most part--through analysis of the cultural background of the language and literature. High-school and college teaching will also have use for systematic exposition of aspects of the culture, but always in an applied form rather than in the problematical form, involving direct reference to research monographs, that is appropriate for graduate students, even in their "minor" fields.

In preparation at the University of Washington is a _Handbook on the Describing and Teaching of Cultures_, which will inventory the principal research methods and problems awaiting investigation in modern complex, literate cultures. Urgent questions abound in the borderlands between the study of culture and the disciplines of psychology, linguistics, and literature. There is need not only for "point of application" research on the attitudes and skills achieved, but also for research at more theoretical levels. At the level of free, speculative thought, we can design and test new experimental models of cultures. At a level of critique of present working theory, comparisons can well be made between content analysis and _explication de texte_, questionnaires and the subjective observations of well-informed observers, as sources of understanding about a culture. At a level of consolidating working principles, valuable dissertations can be written on concepts that may serve as building blocks for cross-disciplinary synthesis. For example, how do the "norms" that are components of an artwork's evolving import relate to the "norms" that are the components of social institutions? And how do these relate in turn to the "norms" implicit in an organism's behavior?

This last topic illustrates a kind of interdisciplinary problem that may best be treated by a group of separate dissertations: one researcher might study the concept behind a common term ("norm," "schema," "structure," "functional whole," "evolution" and "involution") as it is used in literary or art criticism, another in linguistics, another in the policy sciences, another in the behavioral sciences; but the several researchers would learn from one another as they define their common topic and prepare to present their findings. The criterion of valid research would be determined, for each thesis, by the presiding discipline, which might in some instances be aesthetics or the philosophy of science.

AN INTERDISCIPLINARY Ph.D. IN LANGUAGE AND LANGUAGE LEARNING

Alfred S. Hayes

In the course of the seminar, three sub-groups were formed to make recommendations from different points of view. One group, consisting of Professors Saporta, Lambert, and Keller, attempted to formulate the broad general goals of a suitable Ph.D. program and to list the kinds of training which would best implement those goals. Another group, headed by Mr. Hayes, stated the actual tasks which might fall to the lot of a graduate of this program in those college and university positions he will most likely be called upon to fill. Working independently, a third group, headed by Eugene Brière, produced a tentative list of courses to serve as the bases of discussion of a practical curriculum. The present report will attempt to synthesize the recommendations of all three sub-groups as discussed by the Seminar and subsequently reformulated.

General Ends and Means

I. A) The Ph.D. program seems to have two general ultimate goals: development of (1) an attitude of unprejudiced cross-cultural perspective; and (2) intellectual sophistication and research inquisitiveness. Numner (2) applies to (a) language, (b) language learning, (c) literature, (d) social system and values.

B) A minimum command of a foreign language is a prerequisite for persons entering the program, that is, enough command to ensure effective development of skills in the people they will eventually teach or train. Thus, the acquisition of skills may be a primary need for the people to be taught or trained, but for the Ph.D. candidate, the primary aim is to develop already acquired skills and to integrate them with the intellectual sophistication mentioned above.

II. With these ends in view, various forms of academic training are appropriate in order to make optimally effective a Ph.D. program such as the one envisioned here, but it is clear that any specific program will involve choices and compromises.

Thus, it is felt that:

A) Sophistication and inquisitiveness about language can best be acquired through training in linguistics (as distinguished from attention to advanced training in skill development, e.g., rhetoric, advanced composition, style).

B) Sophistication and inquisitiveness in language learning can best be acquired through training in the psychology of learning and the psychology of language, plus those areas of linguistics concerning languages in contact, such as contrastive analysis and studies in bilingualism.

C) sophistication and inquisitiveness about literature can best be acquired through training in:
   1. foreign and native literature and methods of comparison;
   2. methods of literary analysis in the foreign language, particularly textual analysis (explication de texte);
   3. literary history, primarily for providing background and perspective;
   4. the study of relevant data from anthropological sources which impinge upon literature.

D) sophistication and inquisitiveness about social system and values can best be acquired through training in:
   1. the behavioral sciences: cultural anthropology, sociology, and psychology;
   2. the social sciences: history, political science, and economics;
   3. the humanities: philosophy, literature, and the arts.

III. The person who combines sophistication in language learning with the level of skill required to enter the program is in a position to develop and continually improve methods and materials for imparting these skills.

IV. The Ph.D. candidate who has successfully integrated the training in the relevant areas should develop the desired attitude of unprejudiced cross-cultural perspective. His capacity for transmitting to his students both his attitude and his enthusiasm for research could be enhanced by training in those aspects of social psychology which deal with the development and change of attitudes.

Job Opportunities

It is instructive to consider these broadly stated general aims, and the kinds of training which can implement them, in the light of a statement of the practical demands likely to be made on a graduate of this program. It should be noted here that there was a reasonable concensus in the seminar that job opportunities for Ph.D.'s produced by the program would be primarily in colleges and universities rather than in secondary schools. The practical considerations to be described reflect this consensus.

Initial appointments are likely to be at the instructor or assistant professor level in an established foreign language department. Full-time appointments may be expected to be based on equitable time distribution among any of the following activities:

A) to teach an appropriate number of elementary or advanced courses in the language of choice, including English as a foreign language;

B) to direct and supervise elementary foreign language instruction, including the language laboratory. If no language laboratory exists, the appointee may be expected to plan one and assist in staff orientation;

C) to direct and supervise the teaching of English as a foreign language;

D) to reorganize or institute new programs in the context of either B) or C) above; (Note: the personal qualifications for B), C), and D) will vary, depending on institutional practices, which are usually a function of size. It will be easiest to direct graduate students at a large university, hardest to direct established full-time personnel anywhere.)

E) to supervise or to collaborate in the supervision of training of foreign language teachers seeking undergraduate degrees in departments or schools of education, or in foreign language departments;

F) to be responsible for the testing program of a foreign language department;

G) to conduct research in language learning, including research based on the principles of programmed learning, utilizing language laboratory facilities as required; to construct experimental training and testing materials in accordance with established principles of experimental design and psychometrics. Such research may lead to the development of new course materials;

H) to cooperate in both college and local-school curriculum planning as a specialist in second language learning, and serve as a consultant in such matters throughout the area.

A Tentative Curriculum

The disparity between these largely utilitarian functions and the broad general goals and means previously described is only apparent. If the curriculum is carefully chosen, at least one interdisciplinary combination should lead smoothly to both practical and pure research goals: the combination of linguistics and psychology. Other interdisciplinary combinations are more likely to lead to appointments in either pertinent department.

In this connection, if combinations such as literature and psychology, literature and cultural anthropology or cultural anthropology and psychology seem strange at this stage of interdisciplinary curriculum development and present apparently perplexing problems concerning the kinds of academic appointments which such a specialist may be expected to receive, one may well recall the long-established precedent which exists in the fields of linguistics and cultural anthropology. Well-known scholars now function with distinction in either departments of linguistics or departments of anthropology, and one cannot tell from their research activities to which department they might belong.

In the course of the original discussion of curricular matters, Professor Hanzeli offered an abstract scheme which seems most attractive as a point of departure for the development of specific recommendations. This scheme may be summarized as follows:

Year	(Quarter Hours per Field)			
I	9	9	9	9
II	12	12	12	
III	15	15		

In theory, at least, the course work in the four relevant fields may be thus distributed among linguistics, psychology, literature and cultural anthropology. In successive years, one field is dropped and the third year shows equal concentration in two fields. The distribution is based on the allocation of no more than thirety-six quarter hours per year for the first two years.

Many factors make it necessary to alter this scheme if it is to be translated into specific course offerings and specific core requirements. Perhaps the general guiding principle should be the undergraduate background of a particular candidate. Flexibility derived from this source is consistent with the consensus of the Seminar that the interdisciplinary focus of this program should not preclude candidates who wish to select any two of the contributing disciplines as a field of concentration.

The average candidate, however, will have had no linguistics as an undergraduate, will have had no cultural anthropology, will probably have had one course in general psychology and will offer an undergraduate major in the literature of the language of choice. The suggested first year of graduate study, which may be called the core curriculum, reflects the qualifications of this assumed average candidate, and is designed to strengthen his expected deficiencies in the light of previously formulated needs and aims. It is evident that substantial alterations in the core curriculum must be made for undergraduates offering an undergraduate major in linguistics, psychology, or anthropology, or, for that matter, in mathematics or the physical sciences.

Courses enumerated in this report are, for entirely practical reasons, chosen insofar as possible from course offerings already in existence at the University of Washington. Only where unavoidable are new courses suggested. With all these factors in mind, the following modification of Professor Hanzeli's scheme is suggested for the first year of graduate study. Numbers refer to quarter-hours.

Linguistics	Psychology	Literature	Cultural Anthropology
12	10	6	6

Suggested courses are:

I. Linguistics (12);
Introduction (3);
Phonology (3);
Morphology (3);
Syntax (3).

The slightly heavier emphasis on linguistics derives from the previously mentioned assumption that the candidate will have had no undergraduate work in this field, these twelve quarter-hours thus constituting a minimum of descriptive linguistics for candidates who choose to concentrate in any other two of the available fields. It is suggested that the basic orientation of this sequence be toward the structure of English, with copious examples from both Indo-European and non-Indo-European languages.

I. Psychology (10):
Psychology of Learning (5) (400)*;
Statistics (5) (310).

It is recommended that the course in learning give appropriate but brief treatment, including student participation, of animal learning as a pristine example both of the possibilities of behavioral control and of the rigid demands on the experimenter--ultimately teacher or programmer--who is to shape the specified behavior. Within these five units, attention should then, ideally, be turned to other theories and concomitant developments in the field of human verbal learning.

I. Literature (6):

These six quarter-hours should probably be existing period courses, selected with the undergraduate major in mind, and modified where feasible to include a sample textual analysis of a representative short work of literature. It must be borne in mind that, for certain candidates, however few in number, these might be the only literature courses in the program and that the merit of literary study for nonspecialists has been judged to be primarily attitudinal or aesthetic. It is therefore specifically recommended that these courses be courses _in_ literature rather than _about_ literature or literary research.

I. Cultural Anthropology (6):

Here again one must consider core requirements for eventual nonspecialists, still bearing in mind the primarily attitudinal contribution of this field for such candidates. Ideally, one would wish for an introductory three-hour course at the graduate level. Perhaps the existing anthropology 500, 501, 502 series (perceptorial reading - a core course for the beginning graduate student) could provide the administrative framework for such a course. This could then be followed by a course in the ethnography of one major target culture.

To complete an average schedule of thirty-six hours in three quarters, it is suggested that a third-quarter interdisciplinary seminar be devised, to review and discuss specific interdisciplinary research relationships, each field being represented by a specialist. The candidates' contribution to such a seminar could take the form of a detailed outline of a typical interdisciplinary research problem suggested by the discussion.

This brings us to the second year of graduate study. It is apparent that the choice of courses will depend on the candidate's selection of "interdisciplinary major" and "first minor." In the light of the qualifications for certain positions known to be increasingly available (see above) it seems both practical and appropriate to sketch, for the typical candidate for a Ph.D. in Language and Language Learning, a selection of courses based upon concentration in linguistics and psychology, with a first minor in literature.* This choice should in no way be interpreted as relegating other interdisciplinary combinations to a secondary or tertiary status. The suggested second-year sequence for candidates concentrating in linguistics and psychology, with literature as a first minor, is as follows:

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*This and similar numbers are the course numbers of existing courses at the University of Washington. The five quarter-hour allocation reflects the prevailing organization of psychology courses at this university.

II. Linguistics	Psychology	Literature	Interdisciplinary Seminar
9	10	15	2

The overbalance in favor of literature during this year is a direct consequence of the necessity for limiting literature studies in the first year, because of the expected limited or nonexistent preparation in linguistics and psychology. Typical courses would be:

II. Linguistics (9):
- (6) History of the target language (comparable to existing French 541, 542, 543);
- (3) The Structure of Contemporary (target language).

Psychology (10):
- (5) Psychology of Language (447). Course content should in general be oriented to modern psycholinguistic theory and problems rather than to the historical and philosophical approaches sometimes found under this rubric;
- (5) Tests and measurements (413).

Literature (15):
- (3) Methodology and Bibliography of Research;
- (3) The Teaching of Literature;
- (9) A target literature sequence, with emphasis on textual studies.

III. Linguistics (15); Psychology (15):

It is here that it becomes very difficult to reconcile specific needs with existing course offerings. Serious consideration should be given to the formulation of new and, in part, joint offerings. Practical considerations would seem to dictate joint seminars, perhaps first arranged on an ad hoc basis to fill specific needs. In linguistics, a course in dialectology (530) already exists and is recommended. A three-hour seminar in contrastive analysis seems indicated, "seminar" rather than "course" because of the tentative and sometimes elusive nature and relevance of the subject matter. A course in the physical bases of speech--call it acoustic phonetics, or whatever--should be valuable. In psychology, some work in experimental design seems virtually mandatory, although the seminar did not yield a clear indication of how the requisite knowledge should be acquired. It was felt that some courses in experimental design are too theoretically and mathematically oriented for the preparation of the average candidate in this program. It was pointed out that most courses in psychology require some small scale experimentation, and that it is quite possible for the necessary sophistication in design to derive from practical experience with the problems of the several courses. On the other hand, there is no reason why a good course in experimental design cannot be devised to meet the specific needs of this program.

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*Some participants in the Seminar felt quite strongly that graduate level literary studies were not relevant to a Ph.D. in Language and Language Learning. See Bolinger's paper.

Two synthesizing additions suggest themselves:

1. A three quarter-hour seminar in a selected area of psycholinguistics, such as speech perception;

2. a 3-3 sequence on problems in language teaching methodology, including the language laboratory and general audio-visual implementation. This should not be primarily a course in pattern drill manipulation or gadgetry management. Concrete attempts should be made to reconcile the results of research with practical teaching methods. It is within this framework that the candidate should be required to program short instructional sequences, in order to provide some direct experience with the rigid requirements of programmed learning.

The entire three-year sequence for the linguistics-psychology "track" is summarized on the attached chart.

Since no arrangement of actual courses can fit all the theoretical and practical goals of any given program, it is further suggested that preliminary and/or general examinations assume wide readings in all the associated fields, based on reading lists to be compiled by a joint committee. In this way, gaps, say, in cultural anthropology, or in the social sciences, including the sociology of personal and group interaction, can be filled in, at least with respect to their contribution to the over-all academic sophistication prescribed by the program.

Obviously, any such scheme as that described in this report is only a model requiring even extensive revision in the light of local conditions and the preparation and interests of individual candidates. It has, however, the virtue of reflecting the kinds of problems which must be resolved by any institution contemplating an interdisciplinary Ph.D. When changes are contemplated, it should at once be evident how these changes affect the over-all structure of the program. Practical considerations may, for example, make it necessary to revise one's notions of irreducible minima in any one field, but the suggested matrix should make it possible to be immediately aware of the wider implications of such revisions.

In the course of the Seminar, specific interdisciplinary research problems of dissertation proportions were discussed from time to time. Reference to such problems will be found in the reports of the discussions of each field, and in the workpapers themselves. There will be no dearth of suitable problems, whatever the interdisciplinary combination. The rationale of interdisciplinary work derives precisely from an acute awareness of a multiplicity of problems requiring research competence in more than one discipline. And such research will inevitably raise new questions requiring further study.

Interdisciplinary Ph.D. in Language and Language Learning
Summary of Linguistics-Psychology "Track," with First Minor in Literature

Year						Quarter-Hours
I	Linguistics (12) Introduction (3) Phonology (3) Morphology (3) Syntax (3)	Psychology (10) Psychology of Learning (5) Statistics (5)	Literature (6) Period Sequence (6) (including textual criticism)	Cultural Anthropology Graduate Introduction (3) Ethnography of one Target Culture (3)	Interdisciplinary Seminar (2)	36
II	Linguistics (9) History of Target Language(6) Structure of Contemporary (Target Language)(3)	Psychology (10) Psychology of Language (5) Tests and Measurement (5)	Literature (15) Methodology and Bibliography of Research (3) Teaching of Literature (3) Target literature Sequence, including Textual Criticism (9)		Interdisciplinary Seminar (2)	36
III	Linguistics (12) The Structure of English (3) Contrastive Analysis (3) The Physical Bases of Speech (3)	Psychology (9) Experimental Design (3) Seminar in Human Verbal Learning (3) Seminar in Psychology of Attitude and Attitude Change (3)	Psycholonguistics: Seminar in Selected Problems (3) Methodology (6)			30
					TOTAL	102
Preliminary and/or general examinations to be based on course work and on reading list prepared by joint committee.						

UNIVERSITY OF WASHINGTON
Department of Romance Languages and Literature

SEMINAR IN LANGUAGE AND LANGUAGE LEARNING

AGENDA

September 3 to 7, 1962 Coordinator Sol Saporta

Monday	10:00 a.m. - 12:00 noon Introduction of Papers
Monday	2:00 - 4:00 p.m. Linguistics - Al Hayes
Tuesday	10:00 a.m. - 12:00 noon Linguistics
Tuesday	2:00 - 4:00 p.m. Linguistics; Literature
Wednesday	10:00 a.m. - 12:00 noon Literature - Jacqueline de la Harpe
Wednesday	2:00 - 4:00 p.m. Literature; Cultural Context
Thursday	10:00 a.m. - 12:00 noon Cultural Context - Morris Opler
	2:00 - 4:00 p.m. Cultural Context - Ronald Hilton
Friday	10:00 a.m. - 12:00 noon; 2:00 - 4:00 p.m. Sub-group meetings

September 10 to 14, 1962 Coordinator Wallace Lambert

Monday	10:00 a.m. - 12:00 noon; 2:00 - 4:00 p.m. Reports of Sub-groups
Tuesday	10:00 a.m. - 12:00 noon Psychology - Wallace Lambert
Tuesday	2:00 - 4:00 p.m. Psychology
Wednesday	10:00 a.m. - 12:00 noon Psychology; Programmed Materials
Wednesday	2:00 - 4:00 p.m. Programmed Materials - Stanley Sapon
Thursday	10:00 a.m. - 12:00 noon Programmed Materials
Thursday	2:00 - 4:00 p.m. Final Reports
Friday	10:00 a.m. - 12:00 noon; 2:00 - 4:00 p.m. Final Reports

Following is a list of participants in the seminar entitled LANGUAGE AND LANGUAGE LEARNING held at the University of Washington September 3-14, 1962. All of the participants are from the University of Washington unless otherwise indicated.

Howard Appel
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Paul Kinzel
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Janet Miller
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Theodore Mueller, University of Florida
Duane W. Mylerberg
Howard L. Nostrand
Morris E. Opler, Cornell University
Fred Petersen
Donald Reiff
Thomas Rosenmeyer
Stanley M. Sapon, University of Rochester
Sol Saporta
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Seymour S. Weiner
Richard F. Wilkie
Dean Wilkins
William Wyatt